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Researchers are increasingly calling upon educators to broaden the focus on teaching non-cognitive skills, especially self-regulation, so that all students— with or without disabilities—experience success in school and beyond (Gabrieli, Ansel & Krachman, 2015). Seeing that a majority of students with disabilities receive their education in the general education classroom, general education teachers need to be prepared to teach students with disabilities non-cognitive skills. Typically, teacher preparation programs provide general educators with pedagogical knowledge and skills and the opportunities to apply skills within their clinical experiences. Although teacher preparation programs can serve as arenas in which teachers build the knowledge needed to teach non-cognitive skills to their students and instruction in non-cognitive skills, such as self-regulated learning (SRL), this instruction is currently not provided in most teacher preparation programs. The purpose of this study was to examine the effects of an online SRL training module + SRL *e*Coaching on teachers' SRL instruction during teaching and their students' SRL during learning. The researcher conducted a single-subject multiple probe design across behaviors. One pre-service general education teacher and her student with a disability participated. Results of the study indicate a functional relationship between the intervention and the teacher's SRL instruction and student's SRL strategy use. The limitations of this study, implications, and future directions for SRL researchers and teachers are described.

EFFECTS OF SELF-REGULATED LEARNING TRAINING + *e*COACHING  
ON PRE-SERVICE GENERAL EDUCATION  
TEACHER'S INSTRUCTION AND  
STUDENT OUTCOMES

by

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Approved by  
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To my husband, Brian Sr., you never doubted my strength and never held me back. When I wanted to quit, it was you who inspired me to keep running this marathon.

For my sons, Brian Jr. and James, whose spirit of adventure kept me balanced.

*This is the day the Lord had made. We will rejoice and be glad in it. Psalm 118:24.*

## APPROVAL PAGE

This dissertation written by KARA BATTIN HOLDEN has been approved by the following committee of the Faculty of the Graduate School at The University of North Carolina at Greensboro.

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## CHAPTER I

### INTRODUCTION

On December 10, 2015, President Obama signed the Every Student Succeeds Act (ESSA), which reauthorized the Elementary and Secondary Education Act (ESEA) and emphasized the need for educators to provide all students an equal opportunity to succeed, including students with as well as without disabilities. As the former U.S. Secretary of Education Arne Duncan stated, “We need to raise our standards so that students are graduating prepared to succeed in college and the workplace” (U.S. Department of Education, 2015). To provide such, ESSA policy makers mandated that schools meet college- and career-ready standards and assessments (CCRS) through annual statewide assessments of students’ learning in cognitive and academic areas, such as reading and math.

Despite the importance of improving students’ cognitive and academic skills, however, non-cognitive competencies, such as self-regulation, also affect the success of students with and without disabilities both in school and beyond. The same week President Obama signed the ESSA, Gabrieli, Ansel, and Krachman (2015) released a working paper entitled *Ready to Be Counted: The Research Case for Education Policy Action on Non-Cognitive Skills*, in which they argued that the need to integrate non-cognitive skills into educational policy and practice is urgent. In the report, Gabrieli et al. (2015) argued for the integration of non-cognitive skills, also known as interpersonal and

intrapersonal skills, into policy and practice because—as they justified—researchers who have conducted longitudinal and well-controlled studies on the impact of children’s non-cognitive competencies on immediate and longer-term outcomes, such as academic achievement, career status, and well-being, found that individuals’ non-cognitive skills were as predictive or even more predictive of these outcomes as their intelligence (see Blair & Raver, 2014; Moffitt et al., 2011). Although the authors use the term non-cognitive skills, they are not implying that students’ use of these skills does not require cognition, but note that, as the research they cite has shown, success in school is positively predicted by both cognitive and non-cognitive processes related to self-regulated learning (SRL).

Gabrieli et al. (2015) also urged a broadening of the nation’s educational lens from focusing strictly on increasing students’ cognitive and academic outcomes to teaching them such non-cognitive competencies as self-control, social-emotional competence, and self-regulation (e.g., Schweinhart et al., 2005; Blair & Raver, 2014). For students to learn these non-cognitive skills, however, teachers must be prepared to teach them. This working paper and the passing of the ESSA were not the first to call for non-cognitive skills to be taught in teacher preparation programs; Brownell, Sindelar, Kiely, and Danielson (2010), for example, recommended integrating non-cognitive skills into an educational psychology course and teaching students more holistically. But despite the existing research, the focus of most teacher preparation programs continues to be on preparing teachers to teach such cognitive skills as reading, writing, and math.

In addition to training pre-service teachers in non-cognitive skills and how to teach students to use these skills, teacher educators also need to help them transfer this learning into practice. One way in which teacher preparation professionals can support teachers' transfer of learning to practice is through virtual coaching (i.e., *eCoaching*) during supervision, as researchers have shown that professional development (e.g., online module training) paired with coaching can be effective in closing the learning-to-practice gap (Joyce & Showers, 2002). Furthermore, programs also need to prepare teachers to teach these skills to students with high-incidence disabilities, who typically have difficulty with non-cognitive skills, especially self-regulation (Gage, Lierheimer, & Goran, 2012) and as a result experience academic, behavioral, and/or social difficulties that contribute to detrimental school and life outcomes (Bryan, Burstein, & Bryan, 2001; Nordgren & Chou, 2001).

### **Statement of the Problem**

Policy makers and researchers are increasingly calling upon general and special educators to focus on teaching non-cognitive skills, especially self-regulation, so that all students— with or without disabilities—experience success in school and beyond. Typically, teacher educators provide teachers with pedagogical knowledge and skills and opportunities to apply these skills within their clinical experience. Although teacher preparation programs thus can serve as arenas in which teachers build the knowledge needed to teach non-cognitive skills to their students, instruction in non-cognitive skills is currently not provided in most teacher preparation programs.

## **Rationale**

Although researchers have pinpointed an existing deficit in the teaching and learning of non-cognitive skills (Gabrieli et al., 2015) and argued that high-quality training for educators should include integration of coursework and clinical practice (e.g., Brownell et al., 2010), they have also found that teachers still struggle to carry out the pedagogical learning and skills they have been taught into the classroom (Rock, Zigmond, Gregg, & Gable, 2011). This struggle leads teachers feeling ill prepared for the profession and, as a result, 40-50% of new teachers leave in the first five years; of these teachers, special educators have the highest attrition rates (Connelly & Graham, 2009; Ingersoll & Smith, 2004). Researchers have investigated the role of teacher preparation and found teachers who reported being well prepared for the profession tended to stay in teaching (Ingersoll, 2003) and outperform teachers who do not receive training (Goldhaber, 2006; Goldhaber & Cowan, 2014). Specifically, researchers have emphasized the importance of pre-service teachers' clinical experiences and its impact on their development of essential knowledge and teaching skills (Buck, Morsink, Griffin, Hines, & Lenk; Ingersoll, 2003; Prater & Sileo, 2004).

Thus, reform efforts are under way in teacher preparation programs to increase the rigor of training, including changes in clinical practice. The authors of the NCATE Blue Ribbon Report (2010) argued that teacher preparation programs have not adequately supported students' clinical preparation and that to be more effective, programs must place P-12 student learning at the forefront of teachers' learning. Their guidelines for such reforms include revamping teacher preparation programs so that practice, content,



theory, and pedagogy are better integrated and aligned (NCATE Blue Ribbon Report, 2010).

According to the U.S. Department of Education (2015), 95% of K-12 students with disabilities receive special education services in public schools. Of these students with disabilities, 61.1% spend 80% or more of their school day in a general education classroom. This high percentage of students with disabilities in the general education classroom requires general education teachers to provide them a majority of their instruction—focused on cognitive and non-cognitive skills.

Therefore, the rationale for this study is to further the understanding of how online training in SRL + *eCoaching* can be employed as part of supervisory practices during clinical practice to help pre-service general education teachers who teach students with disabilities in the general education classroom acquire the necessary knowledge and skills for efficiently and effectively teaching non-cognitive skills, particularly self-regulation. If teachers are afforded opportunities to learn SRL content knowledge and strategies (i.e., online training in SRL), then receive *eCoaching* on their SRL instruction, the likelihood of their transferring their knowledge to practice could be significantly improved.

### **Theoretical Framework for Improving Students' SRL**

As this shift in educational policy and practice takes place, students must learn the self-regulation skills necessary to become successful in school and beyond. For this to happen, however, teachers must be knowledgeable of SRL content and strategies and able to incorporate this learning into practice. Thus, the framework for this study includes

three components: (a) students' use of SRL, (b) pre-service general education teachers' learning of SRL content and strategies, and (c) pre-service general education teachers' transfer of this learning into the classroom.

In regards to the student component of this theoretical framework, the researcher employed Zimmerman's (2011) model of self-regulated learning. As shown in Figure 1, this model presents SRL as a cyclical process composed of three phases: (a) performance, (b) forethought, and (c) reflection. According to Zimmerman and Schunk (2001), in the forethought phase, learners set a goal, plan strategies, and develop self-efficacy for learning. In the performance phase, learners apply these strategies and take action toward their goal by using self-control and self-observation, such as setting time aside to study and record their progress. In the reflection phase, learners self-evaluate their progress toward the goal (e.g., "Did I get an A on the test? If so, what strategies did I use that most likely helped me do so?"), attribute success or failure toward reaching the goal to their chosen strategy, and decide to continue, modify, or stop using that strategy. In this phase, a self-regulated learner's self-efficacy improves and motivation to continue learning.

Among other researchers who have adopted this model, Dignath, Buettner, and Langfelt (2008), in their meta-analysis, found that SRL interventions that combine strategies are more effective than SRL interventions that present a single strategy. According to Schunk and Bursuck (2014), strategies that can help students with disabilities learn and acquire SLR include, but are not limited to, self-recording, self-instruction, goal-setting, and self-reinforcement. Together, researchers have shown that when students learn and practice the strategies needed to acquire SRL, they are better

able to control their thoughts, feelings, and actions, and thereby improve their academic and behavioral outcomes. Furthermore, students' use of self-regulatory learning strategies has been associated with higher academic achievement (Zimmerman, 2002). In this dissertation study, the researcher employed self-recording, self-instruction, goal-setting, and self-reinforcement as the four focus strategies that the participating student with a disability used to help him develop SRL.

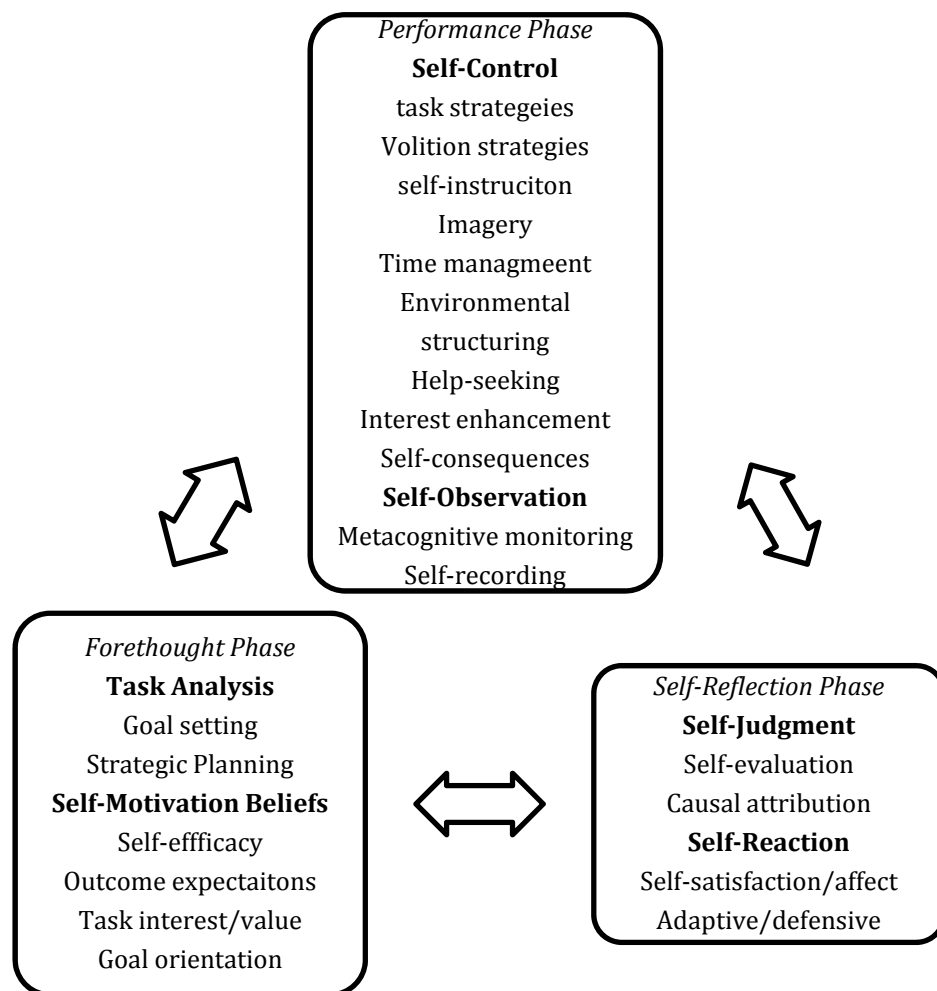


Figure 1. Phases and Subprocesses of Self-Regulation, from Zimmerman & Campillo (2003), p. 239.

Researchers have found that teachers' feedback can positively impact students' SRL, showing, for example, that effort feedback can improve students' self-efficacy (Schunk & Cox, 1986). Yet, teachers obviously must have knowledge on and how to teach it effectively if they are to support the SRL of students with disabilities. As Lampert (2010) argued, teacher educators must deconstruct new practices into their essential components to help pre-service teachers learn and practice those components separately before putting them together in their own teaching practices. Echoing Zimmerman's model, Allen and Eve (1968) described these components of practice as occurring in three stages: planning, teaching, and reflecting. According to Hillier (2005), the last of these, reflecting, is a way for pre-service teachers to self-evaluate planning and teaching.

Pre-service general education teachers' ability to effectively reflect on planning and teaching, however, does not always occur naturally because, as Schön (1983) remarked, the act of reflection requires learners to consciously put forth effort to apply their prior knowledge when experiencing novel or ambiguous situations in order to "generate both a new understanding...and a change in the situation" (p. 68). Yet, Brownell et al. (2005) found, effective teacher preparation programs promoted pre-service special education teachers' reflective practices to support their moving beyond their initial and often simplistic views of teaching and learning and developing more sophisticated thinking. Although pre-service general education teachers may reflect upon their planning and teaching informally (e.g., Shoffner, 2008), reflective questioning provides a more conscious and structured way to encourage such reflection (Moon,

1999). According to Roffey-Barensten and Malthouse (2013), teachers' conscious engagement in self-reflection allows them to self-evaluate their planning and teaching because they must think about what they did that helped their students, how they can continue these actions, and what may not have gone so well. This thought process helps teachers decide what instructional practices to continue or avoid using in the future.

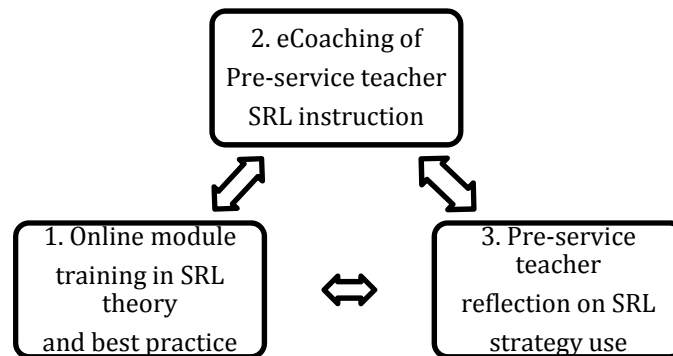
Moreover, Joyce and Showers (2002) have found that teachers are far more likely to transfer new learning to practice when it is paired with coaching. Joyce and Showers' (1982) coaching model comprises four components: learning about theory and best practices, peer observation of best practices, one-on-one coaching, and group coaching. This study incorporated three of those components, the study and the observation of theory and best practices through online SRL module training and one-on-one coaching through *eCoaching*. It did not include group coaching because there is limited research on group coaching for pre-service teachers and the current research on peer observation of practice is equivocal, especially at the pre-service level.

Accordingly, the SRL instructional model employed in this study took place in three stages: pre-service general education teacher learned and observed SRL content knowledge and strategies (i.e., online SRL module training), then provided SRL instruction while receiving *eCoaching*, and lastly reflected on her SRL instruction. During the first stage (learning SRL theory and best practice), the pre-service general education teacher participated in an online SRL module training and learned about SRL content (definition, background, rationale for implementing in teaching practices) and basic knowledge on four strategies known to help support SRL: self-recording, self-

instruction, goal-setting, and self-reinforcement (Zimmerman & Moylan, 2009). In this stage, the pre-service general education teacher also gained knowledge on how she could plan for and provide explicit and implicit SRL instruction during reading instruction and viewed video examples of the SRL instruction she studied to see what it looked like in practice.

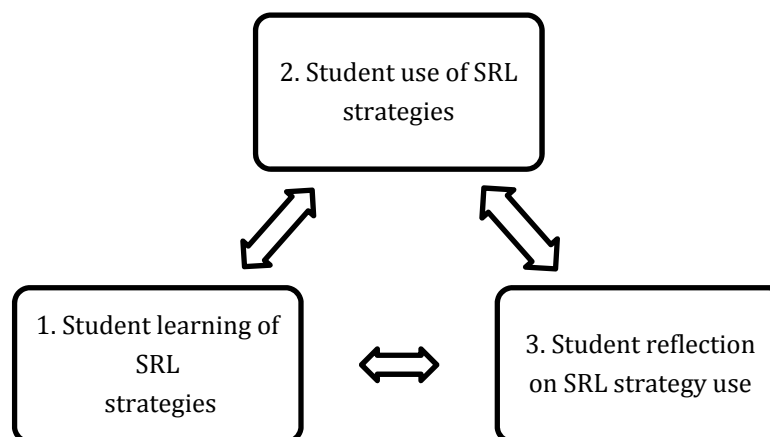
In the second stage, providing SRL instruction, the pre-service general education teacher taught scheduled reading lessons and provided students with SRL instruction. Also in this stage, the pre-service general education teacher received feedback on her implementation of SRL instruction and her student with a disability's use of SRL strategies. An expert in SRL (the researcher) provided *eCoaching* via Bluetooth and Skype, which is described in more detail in Chapter III.

In the third stage (i.e., reflecting), the pre-service general education teacher briefly (i.e., five minutes) met with the *eCoach* to reflect on: (a) what went well with her SRL instruction, (b) what she could improve upon with their SRL instruction, and (c) what actions she planned to take to make those improvements. The SRL *eCoaching* model is cyclical in that the pre-service general education teacher, after reflecting, might have needed to turn back to her notes and learning of SRL theory and best practice (although the online module training was only repeated prior to the implementation of each new behavior) before returning to instruction again. The teacher SRL model echoed Zimmerman's (2011) SRL model and is provided in Figure 2.



*Figure 2. Teacher SRL eCoaching Model.*

Likewise, the student's learning and use of SRL echoed Zimmerman and Campillo's (2003) SRL model and occurred in a series of three stages (see Figure 3). In stage one, the student learned SRL strategies through the pre-service general education teacher's explicit instruction. In stage two, the student used SRL strategies and received support (e.g., implicit instruction, effort feedback) from the pre-service general education teacher. In stage three, the student reflected on use of these SRL strategies.



*Figure 3. Student SRL eCoaching Model.*

## **Research Questions**

The purpose of this study was to investigate the effect of online SRL module training + *eCoaching* in self-regulation strategies upon both pre-service general education teacher and student performance. In this study, the researcher examined the impact of receiving online SRL training + *eCoaching* on the use of self-regulation strategies upon a pre-service general education teacher's and her student's actual use of self-regulation strategies in the classroom to answer the three following research questions:

RQ 1: How does a pre-service general education teacher's participation in online SRL training + *eCoaching* impact her use of those strategies, during classroom instruction?

RQ 2: How does a pre-service general education teacher's SRL strategy use during instruction impact her student's use of those strategies?

RQ 3: How does a pre-service general education teacher's SRL strategy use during instruction impact her student's engagement in learning?

RQ 4: How does a pre-service general education teacher's participation in online SRL training + *eCoaching* impact her own self-reflection?

## **Limitations of the Study**

Several factors that cannot be controlled by the researcher contributed to the limitations of this study. First, the researcher employed a single subject research design (SSRD) (Gast, 2010), and in doing so analyzed only two subjects (pre-service general education teacher and her student with a disability) which is a small sample size.

Therefore, the sample may not represent the larger population of pre-service general education teachers and students with disabilities (Gall, Gall, & Borg, 2007; Horner, Carr,



McGee, Odom, & Wolery, 2005). Also, following the protocol for a multiple probe design across behaviors, the researcher was unable to randomly assign either teacher or student participant to a control or intervention group because the pre-service general education teacher and student served, each, as their own control (Gast, 2013). Second, self-regulation is complex and multi-dimensional (Boekarts & Corno, 2005), which means it can occur internally and thus is not always a behavior that a researcher can observe. Third, the study was conducted with only one pre-service special education teacher from one teacher preparation program at an Institution of Higher Education (IHE) in the southeastern region of the United States, perhaps limiting the generalizability of its findings to other pre-service general and special education teachers and students. Fourth, the online presence of the researcher may have changed the participants' typical behavior (also known as the Hawthorne effect; see Gall et al., 2007). Fifth, although trained secondary observers conducted inter-rater reliability, the observers were aware of the purpose of this study, which may have created observer contamination. Last, this study was not designed to be a component analysis because the researcher did not intend to differentiate the separate effects of online SRL training or the *eCoaching*, thus it is inconclusive which had the greatest impact on the outcomes of the pre-service general education teacher participant and student participant. Also, although the *eCoaching* component was removed from the pre-service general education teacher (i.e., during maintenance phase) the online SRL training module provided to the teacher was always available to her once she received access.

### **Delimitations of the Study**

Among the delimitations associated with this study, the researcher purposefully recruited pre-service general and special education teachers engaged in the student teaching (i.e., internship) component of their teacher preparation program. Also, when recruiting, the researcher was looking for pre-service general and special education teachers who taught in a classroom that included students with high-incidence disabilities. The researcher recruited pre-service general and special education teachers who already completed coursework in teaching cognitive skills (e.g., reading, writing, and math), but did not receive coursework or supervision on learning and teaching non-cognitive skills. The researcher aimed to investigate the effectiveness of online SRL module training + *e*Coaching on teacher's use of self-regulation strategies and her third grade student's with a disability use of it. In this study, measurement of pre-service general education teacher outcomes is limited to use of self-regulation strategy instruction; whereas, the third grade student outcomes measurement was limited to his use of self-regulation strategies and engagement.

### **Assumptions of the Study**

This study is based on several assumptions. First, because the pre-service general education teacher taught one third grade student participant to self-record his use of self-regulation strategies, the researcher assumed that the student self-recorded accurately and to the best of his ability. Second, given that the pre-service general education teacher was volunteering to participate in the study, the researcher assumed that the changes in her teaching behavior were attributable to the implementation of online SRL module training

+ *eCoaching* during supervision and not just because she was involved in a study. Third, the researcher also assumed that the pre-service general education teacher did not have any training on learning or teaching non-cognitive skills, such as self-regulation.

### **Definition of Terms**

The following are operational definitions of the terms associated with this investigation.

*Bluetooth:* A wireless standard that connects electronic devices within short ranges, such as between a Bluetooth earpiece and computer.

*Bluetooth adapter:* A technology device that allows short-range wireless transmission between the classroom computer and the Bluetooth earpiece, permitting pairing the Bluetooth earpiece with the pre-service special education teachers' classroom computers (Rock et al., 2009).

*Bluetooth earpiece:* An earpiece with a microphone that allows the pre-service special education teacher and coach to communicate discretely via Bluetooth technology that sends a signal between the earpiece and computer.

*eCoach:* An individual trained to provide feedback to pre-service special education teachers on the delivery of their instruction and impact on P-12 students' academic and behavioral outcomes in an online setting "characterized by an observation and feedback cycle in an ongoing instructional or clinical situation" (Joyce & Showers, 1982, p. 170).

*eCoaching:* Formerly referred to as virtual coaching, *eCoaching* is "a relationship in which one or more persons' effective teaching skills are intentionally and potentially

enhanced through online or electronic interactions with another person” (Rock et al., 2014, p. 162). In this study, *eCoaching* was be provided through online BIE technology.

*Explicit SRL strategy instruction:* Teacher provides direct instruction explaining different strategies to students, as well as how those strategies are used and what skills are involved in using those strategies. Teacher provides students directions on how and when to use strategies, how and when to set and pursue goals, and how to monitor them (Michalsky & Schecter, 2013).

*Feedback:* Academic or behavioral information the coach provides to (1) encourage, (2) instruct/correct, and/or (3) question pre-service special education teachers' behaviors.

*Forethought:* One’s thoughts, feelings, and actions prior to engaging in accomplishing a goal. Key processes include task analysis (i.e., goal setting, strategic planning) and self-motivation beliefs (i.e., self-efficacy, outcome expectations, intrinsic interest/value, learning & goal orientation) (Zimmerman, 2002).

*Goal-setting:* Self-regulated learners can set two types of goals: performance or behavioral (Harris, Graham, & Rock, 2011). When a student sets a performance goal he may aim to earn a higher mathematics grade or read a set number of words per minute. When a student sets a behavioral goal he may want to improve his attention during teacher instruction or decrease the amount of times he blurts out in class and disturbs instruction.

*High-incidence disabilities:* A disability category that includes learning disabilities (LD), emotional and/or behavioral disorders (E/BD), and mild intellectual

disabilities (MID), high-functioning autism, attention-deficit hyperactivity disorder, and/or speech and language impairments (Gage et al., 2012).

*Immediate feedback:* Feedback delivered within 1-3 seconds after the desired behavior was or was not observed (Scheeler, Ruhl, & McAfee, 2004).

*Implicit SRL strategy instruction:* Teacher provides modeling and demonstrations of strategies to students, as well as how those strategies are used and what skills are involved in using those strategies. Teacher provides students directions on how and when to use strategies, how and when to set and pursue goals, and how to monitor them (Michalsky & Schechter, 2013).

*Online Bug-In-Ear technology (BIE):* Combined technologies intended to provide immediate feedback to teachers while they are actively engaged in teaching P-12 students. For the purposes of this study, this combination included a (1) video capture device (e.g., webcam, iPad, or laptop computer), (2) live video capture platform (i.e., Skype), (3) Bluetooth earpiece, and (4) Bluetooth adapter.

*Online SRL module training:* Multimedia instruction (e.g., words, graphics, video clips) delivered via an online platform (e.g., Wikispace) and designed to foster pre-service special education teachers' learning of knowledge and strategies of self-regulation (see Mayer, 2014).

*Performance:* One's thoughts, feelings, and actions during the act of accomplishing a goal. Key processes include self-control (i.e., imagery, self-instruction, attention focusing, task strategies) and self-observation (i.e., self-recording, self-experimentation) (Zimmerman, 2002).

*Pre-service special education teacher:* A student practicing to be an expert in the instruction and delivery of a set of standards and curriculum for K-12 students' with learning disabilities.

*Pre-service special education teacher outcomes:* Pre-service special education teachers' use of explicit and/or implicit strategy instruction to promote students' use of SRL strategies.

*Self-instruction:* A learners' verbal or oral reminders (e.g., note on the calendar or self-statement) produced to increase the likelihood a behavior or action will occur (Mace et al., 1989).

*Self-monitoring:* A learners' deliberate attention to his or her attention or performance (Mace et al., 1989; Reid, 1996).

*Self-recording:* A learners' recording of actions and/or performance to monitor and enhance reflection once task is completed (Mace et al., 1989).

*Self-regulated learning:* How an individual structures self-generated thoughts, feelings, and actions toward learning and goal attainment (Schunk & Zimmerman, 2008; Zimmerman, 2002).

*Self-regulation:* How an individual controls thoughts, feelings, and actions toward goal attainment (Zimmerman, 1990). Self-regulated learning is a cyclical process composed of three phases: forethought, performance, and self-reflection.

*Self-reflection:* One's thoughts, feelings, and actions after one has engaged in accomplishing a goal. Key processes include self-judgment (i.e., self-evaluation, causal

attribution) and self-reaction (i.e., self-satisfaction/affect, adaptive/defensive) (Zimmerman, 2002).

*Self-reinforcement:* A selected and preferred activity, tangible, or social event that motivates a student to accomplish a goal (Reid, Harris, Graham, & Rock, 2012).

*Skype:* Software that enables visual and auditory communication for free via mobile, computer, or TV devices.

*Special education teacher:* Teacher trained to be an expert in the delivery of instruction to students identified as having a disability.

*Student outcomes:* Students' use of self-regulation strategies. Also, the behavioral performance of students as measured by students' academic, behavioral, and social/emotional engagement (Fredricks, Blumenfeld, & Paris, 2004).

*Teacher preparation program:* Training, usually in a college of education, intended to provide teachers with the knowledge and skills necessary to be successful in the classroom. Teacher preparation includes coursework and clinical practice.

*Webcam:* A digital camera that inputs to a computer whose images are transferred, often in real time over the Internet, so that its images can be viewed by Internet users.

## **Summary**

Across the United States, educational reform continues to be underway. As a means to increase students with and without disabilities' success in school and beyond, policy makers have reauthorized the ESEA through the recent passage of the ESSA. At the same time, the authors of a landmark working paper urgently called for non-cognitive

skills to be integrated into educational policy and practice, as these skills help students succeed in school and beyond (Gabrieli et al., 2015). According to those and other experts, the existing focus of teacher educators on cognitive skills in teaching and learning must also include non-cognitive skills, particularly self-regulation (Gabrieli et al., 2015). Also, researchers have identified a need for an emphasis on non-cognitive skills development for vulnerable students, such as those with disabilities (Reidet al., 2012).

Additionally, policy makers have called for improvement in the way teachers are prepared, particularly by providing more rigorous clinical practice (NCATE Blue Ribbon Report, 2010). In the past five years, several researchers have investigated the use of *eCoaching* and its impact on K-12 students in an effort to improve clinical practice (e.g., Ploessl & Rock, 2014; Rock et al., 2009, 2012, 2014). The current integration of online SRL module training + *eCoaching* during pre-service general education teacher's clinical practice in many teacher preparation programs provides a new and potentially powerful way for teachers to learn skills to promote SRL strategy use in the classroom and transfer them to their classroom practice.

The purpose of this study was to investigate the efficacy of online SRL module training + *eCoaching* focused on self-regulation instruction and practices on pre-service general education teacher's practices during her clinical experience. Although some research has been done on how *eCoaching* can improve pre and in-service teachers' use of evidence-based instruction and positive behavior support as well as K-12 student engagement, none has yet been conducted on whether it can improve a pre-service



general education teacher's self-regulation instruction and her K-12 student's self-regulation. This chapter included a discussion of the problem, significance, and contributions of the study. Chapter II includes an examination of the current literature on special education teacher preparation, multimedia instruction (e.g., online module training) and *eCoaching* practices, and K-12 students' self-regulated learning. Chapter III includes an in-depth description and justification for the research design and methods proposed. Chapter IV includes the findings of the study according to each research question. And Chapter V includes a discussion of the findings, implications from the study, and future directions for research and practice.

## CHAPTER II

### LITERATURE REVIEW

The purpose of this study was to investigate the efficacy of online module training + *e*Coaching as part of a pre-service general education teacher's training in self-regulated learning (SRL) instruction and the development of SRL skills among her third grade student with a disability. The content in this chapter includes a description of the widely acknowledged characteristics of self-regulated learning, followed by an examination of the theoretical foundations and current empirical research into SRL instructional models. Then, the focus shifts to current research on training pre-service general education teachers in SRL instruction, beginning with studies on current practices in pre-service general education teacher skill development and transfer and moving to studies specifically on the use of *e*Coaching in clinical practice. It then concludes with a summary of present knowledge and practices regarding how to effectively prepare pre-service general education teachers to develop self-regulated learning skills among their K-12 students with and without disabilities and of how this research study contributed to those efforts.

A comprehensive review of the relevant literature on self-regulation, teacher preparation, and *e*Coaching literature was conducted, using a combination of electronic and hand searching methods using keywords associated with the topic of this study. An

initial general search of electronic databases (Academic Search Complete, ERIC, EBSCO, Education Full Text, PsychINFO, and PsychARTICLES) using combinations of “self-regulation,” “self-regulated learning,” “student,” “special,” “exceptional,” “disability,” and “children” produced 108 results. A second search of the same databases using the keywords “teacher,” “educator,” “preparation,” “development,” “training,” “instruction,” “professional,” “pre-service,” “candidate” in combination with “self-regulated learning” or “self-regulation” which produced an additional 679 results, after removing redundancies. A third search of the same databases using the keywords “pre-service,” “teacher,” “preparation,” “coaching,” “bug-in-ear,” “eCoaching,” and “virtual” produced 6 results. The author then read the titles and abstracts from this search ( $n = 792$ ) and selected studies, reports, and book chapters relevant to the concerns of this research study, which are discussed below.

### **Non-Cognitive Skills: The Role of Self-Regulated Learning**

Among the implicit goals of education are to nurture students’ critical thinking skills, problem solving skills, social skills, work ethic, and overall social, emotional and democratic citizenship skills (Rothstein, Jacobsen, & Wilder, 2008). As President Obama recently pointed out when he signed the Every Student Succeeds Act (ESSA, 2015), success in today’s economy requires that “our young people master not just the basics, but become critical thinkers and creative problems solvers and our competitive advantage depends on whether our kids are prepared to seize the opportunities for tomorrow.” His comment concurs with a general consensus among education researchers that non-cognitive skills such as persistence, creativity, and self-control are just as

important for students to learn as cognitive skills and content because they support students' cognitive development and ability to become productive members of society (Garcia, 2014).

Whereas cognitive skills are used to process information, comprehend new spoken or written information, and remember what they have learned, non-cognitive skills are used to manage one's self (intrapersonal skills) and interact with others (interpersonal skills). Although non-cognitive skills can be more difficult to identify, measure, and quantify than cognitive ones, researchers have begun to define and examine them more closely. Garcia (2014), based on earlier work by Borghans et al. (2008) and Bloom (1964), described non-cognitive skills as "representing the patterns of thought, feelings, and behavior of individuals that may continue to develop throughout their lives" (p. 6). As Gabrieli et al. (2015) have pointed out, researchers have variously referred to non-cognitive skills as character strengths, 21<sup>st</sup> century skills, or social-emotional competencies. According to Pianta et al. (2005), non-cognitive skills can be thought of as character traits that impact both the interpersonal skills students use to build relationships with teachers (closeness, affection, and open communication) and the intrapersonal skills students use to manage themselves (self-control) and their learning (self-regulation). Although Pianta referred to non-cognitive skills as character traits, these skills are not automatic and a student must strategically use cognitive processes (e.g., self-instruction, self-monitoring,) to learn, develop, and use these skills.

As discussed in Chapter I, self-regulation is one such non-cognitive skill that educators and policy makers have argued is necessary to integrate into educational

practice. Zimmerman (2000), a leading researcher in this field, broadly defined self-regulation as how a student controls thoughts, feelings, and behaviors to attain a goal. When students take responsibility and control of their learning, they are self-regulating their learning (Paris & Winograd, 2003; Zimmerman, 1990). According to Paris and Oka, self-regulated learning occurs when “individuals manage their cognitive abilities and motivational effort so that learning is effective, economical, and satisfying” (1986, p. 103). The rest of this section includes examination of the identified characteristics of self-regulated learners and then the demonstrated outcomes of SRL.

### **Characteristics of Self-Regulated Learners**

As previous researchers have indicated, self-regulation is not a developmental stage, a mental ability, or an academic performance skill (e.g., Schunk & Zimmerman, 2008) but rather involves a students’ initiation of processes, strategies, or responses. When individuals self-regulate their learning, they are able to do so in a variety of contexts, relationship, and situations, in and beyond school (Paris & Winograd, 2003). Moreover, as numerous psychology and education scholars have argued, self-regulated learners possess many highly effective character traits, such as confidence, diligence, and resourcefulness (Bandura, 1989; Carver & Sheier, 1981; Mace, Belfiore, & Shea, 1989; McCombs, 1989). According to Zimmerman (1990), self-regulated learners are aware when they know a fact and when they do not, proactively seek information and the necessary steps to master it, and accept greater responsibility for their achievements. As described by Paris and Oka (1986), self-regulated learners engage in problem solving, attack challenging problems, and persist in difficult situations, providing them, in the

words of Dignath, Buettner, and Langfeldt (2008), with “the skills to learn effectively both in school and later in life” (p.102). Simply put, when individuals are capable of self-regulating their learning, they possess the skills and strategies needed to be motivated to achieve success and to avoid failure (Paris & Oka, 1986).

Three characteristics of self-regulated learners cited frequently in the research on SRL are their self-oriented feedback loops, sustained motivation, and use of processes, strategies, and responses, each of which is discussed in what follows.

**Self-oriented feedback loop.** Researchers have described self-regulated learners as metacognitive or aware of their thinking and as able to monitor their thinking habits to evaluate how well they select processes, strategies and responses (Brown, 1978; Flavell, 1978). This process, referred to as a self-oriented feedback loop (Lord, Diefendorff, Schmidt, & Hall, 2010), involves three interrelated processes: self-observation, self-evaluation, and self-reaction (Bandura, 1986). A self-regulated learner deliberately uses this self-oriented feedback loop to self-monitor how effectively he or she has selected processes, strategies, and responses to external feedback while attempting to achieve a goal, such as deciding to spend more time on a task or to change a strategy (Carver & Scheier, 1981; Zimmerman, 1989).

**Use of processes, strategies, and responses.** Researchers have found that self-regulated learners deliberately select and adapt motivational or behavioral processes, strategies, and responses to reach a learning goal in a more efficient way (Dignath et al., 2008; Zimmerman, 1990; Zimmerman & Schunk, 2001). Researchers have found, too, that self-regulated learners use three types of strategies to augment these processes:

cognitive, metacognitive, and motivational (Boekaerts, 1999). Cognitive strategies help students accomplish a task; metacognitive strategies help students choose, monitor, and modify strategies; and motivational strategies help students initiate and maintain effort in a task (Dignath & Büttner, 2008; Wery & Neitfeld, 2010). For example, a learner can self-monitor (i.e., metacognitive strategy) his or her actions to observe and record behavior in effort to complete a task (Mace et al., 2001), such as using prompt cards to check off strategies used during reading (Mason, 2004). Self-regulated learners use metacognitive and motivational processes to actively take part in their learning (Zimmerman, 1990), such as engaging in the metacognitive processes of planning, setting goals, organizing, self-monitoring, and self-evaluating. They engage in the motivational processes of selecting, structuring, and creating learning environments that maximize their learning.

Researchers have also found that self-regulated learners respond to themselves and their environment during learning, such as self-reinforcing their behavior after they accomplish a goal (Paris & Winograd, 2003; Zimmerman, 1990). The process through which this response occurs varies between operant theorists and social cognitive theorists, the former viewing a learners' response as a result of external stimuli (e.g., rewards or punishment) and the latter as a result of his or her self-efficacy and reciprocal interactions between personal, behavioral, and social/environmental factors (Bandura, 1986). Although all learners use regulatory processes to some degree, self-regulated learners are also aware of the relationship between using those processes and strategies and achieving their academic goals (Zimmerman, 1990).

**Sustained motivation.** Researchers have found that learners who are self-regulated are more motivated and emotionally involved during learning than those who are not (Pintrich, 2000; Zimmerman, 1990). Zimmerman argues that learning and motivation are two interdependent processes that cannot be understood separately. Other researchers have found that self-regulated learners integrate both skill and will to make decisions about the goal of an activity, its level of difficulty, and their ability to accomplish it (Paris & Cross, 1983). According to Paris and Winograd (2003), self-regulated learners know how and why to approach a task, to select strategies, and to engage in learning. When learners are not motivated, the researchers noted, they may choose to avoid learning and minimize challenges, avoid difficult tasks, and develop learned helplessness, apathy, or defiance.

### **Outcomes of Self-Regulated Learners with and without Disabilities**

Students' ability to self-regulate has proven to benefit their short and long-term outcomes. In brief, short-term outcomes have included students' ability to increase their academic achievement and learning motivation (e.g., Chung, 2000; Paris & Paris, 2001; Zimmerman, 1990; Zimmerman & Bandura, 1994; Zimmerman & Martinez-Pons, 1988), while long-term outcomes have included improved high school graduation rates, financial stability, and decreased rates of incarceration (Blair & Raver, 2014).

Not all students, however, naturally self-regulate their learning, especially students with high incidence disabilities (Paris & Oka, 1986). High-incidence disabilities have traditionally included learning disabilities (LD), emotional and/or behavioral disorders (E/BD), and mild intellectual disabilities (MID), although high-functioning



autism, attention-deficit hyperactivity disorder, and/or speech and language impairments are now being identified at higher rates and included in this category (Gage et al., 2012). Hereafter, students with high incidence disabilities are referred to simply as students with disabilities.

According to Wery and Nietfeld (2010), most students with high-incidence disabilities are not aware of what they know and do not know; are passively involved in their learning; have not developed appropriate cognitive strategies to support their learning; and rely too heavily on one particular strategy and/or fail to use strategies. As a result, researchers found, some students with disabilities do not believe they will be successful in their learning and avoid challenging tasks, further contributing to the achievement gap between them and their non-disabled peers (Reid et al., 2012).

Other researchers concur that as a result of limited self-regulated learning skills, students with disabilities tend to experience academic, behavioral, and/or social difficulties that contribute to detrimental school and life outcomes (Bryan et al., 2001). According to 2014 data, for instance, only 61% of the 6 million public school students with identified disabilities graduated from high school (National Center for Education Statistics, 2014). Students with disabilities have been found to be less likely to attend college, find employment (Newman, Wagner, Cameto, & Knokey, 2009), and live independently (Wagner, Newman, Cameto, Garza, & Levine, 2005).

Researchers have proven that students with disabilities can be taught how to self-regulate learning and develop the skills and strategies needed to increase motivation, achievement, and beliefs about their learning (Schunk & Ertmer, 2005; Schunk &

Zimmerman, 2008), although they need explicit instruction in how to do so (Moos & Ringald, 2012; Reid et al., 2012).

### **Theory and Instructional Model of Self-Regulation**

Self-regulation theorists seek to explain how and why a learner will achieve despite barriers and limitations (e.g., mental ability, social-emotional development) and how and why a learner might fail to learn despite advantages (e.g., mental ability, social-emotional development). As noted by Paris and Winograd (2003), self-regulation theories “help describe the ways students approach problems, apply strategies, monitor their performance, and interpret their outcomes and their efforts” (p. 5). Therefore, researchers’ theoretical perspective influences the framework of the SRL interventions they design for students with and without disabilities (Dignath et al., 2008). Although, as noted earlier, some researchers have adopted operant or constructivist theoretical frameworks for examining SRL, Dignath et al. (2008) conducted a meta-analysis of SRL intervention programs for students without disabilities and found that social cognitive theory was the most effective at improving students’ SRL and academic outcomes. Their findings are consistent with Schunk and Bursuck’s (2014) claim that social cognitive theory is one of the leading theories used in self-regulation research with students with disabilities. As stated in Chapter I, this dissertation study was based on the social cognitive theory and Zimmerman’s model of the SRL cycle, and this section thus begins with a brief description of social cognitive theory as it relates to SRL of students with disabilities and this study before examining the models employed by previous research on this topic.

## **Social Cognitive Theory**

Researchers have applied principles of social cognitive theory extensively in self-regulation research (Bandura, 1997, 2001; Pintrich, 2004; Pintrich & Zusho, 2002; Zimmerman, 2000; Zimmerman & Schunk, 2004). This conceptual framework has been based on Bandura's (1986) social cognitive theory, which emphasized the reciprocal interactions between a person, behavior, and social/environmental factors. Additionally, Bandura posited a learner's self-efficacy, or beliefs about his/her capabilities to learn, is another important construct of the social cognitive theory because it influences these reciprocal interactions. For example, Schunk and Pajares (2009) found learners' self-efficacy—or their personal factors—influence their choice of tasks, effort, and achievement—behavioral factors. One key assumption of this theory is that individuals want to control significant events in their lives, which is also referred to as developing agency, and that this occurs when learners deliberately control their cognitive processes, actions, and self-regulation (Bandura, 1997). In particular, a learner's self-efficacy influences his or her sense of agency and reciprocal interactions. Social cognitive theorists posit that a learner's self-efficacy influences his or her choice of tasks, persistence, effort, and achievement (Schunk & Pajares, 2009) and that the environment plays a vital role in his or her self-efficacy. For instance, a teacher's feedback (e.g., "I think you can do it!") can affect a student's sense of self-efficacy regarding a homework assignment and the course of actions that ensue.

According to social cognitive theorists, self-regulation is a cyclical process involving personal, behavioral, and social/environmental factors that often change and

need to be monitored during learning (Schunk & Bursuck, 2014). As mentioned in Chapter I, Zimmerman (2002) has described the process of self-regulated learning as including three phases: forethought (i.e., processes and beliefs that take place before learning), performance (i.e., processes that take place during learning), and self-reflection (i.e., processes that take place after learning). According to Zimmerman, a learner engages in key sub-processes within each phase in order to be self-regulated. Figure 1 demonstrates this self-regulation process and the key sub-processes in each phase. This process is also affected by social/environmental factors such as reciprocal interactions between students and teachers, which can provide feedback to improve the self-efficacy of students with disabilities (Schunk & Cox, 1986) and prompt them to self-monitor and self-evaluate their progress (Rafferty, 2012). As stated in Chapter I, the researcher in this dissertation study employed Zimmerman's (2011) cyclical model of SRL with particular focus on pre-service general education teacher providing instruction to enhance the forethought, performance, and self-reflection phases and her student with a disability using those strategies to support the performance phase.

### **SRL Instructional Models for Students with Disabilities**

Dignath et al.'s (2008) meta-analysis on self-regulation programs for students without learning disabilities reported that interventions with a combination of metacognitive and motivational or cognitive strategies produced the highest effect size ( $ES = .69$ ) when compared to interventions that taught a single self-regulation strategy. Yet, as others have noted, little research has been conducted into how these strategies might best be combined to support the self-regulation of students with disabilities (Schunk &

Bursuck, 2014; Meichenbaum, 1977) and how they should be taught (Harris, Graham, & Mason, 2006). The previously described search of relevant databases for empirical research on SRL instructional models for students with disabilities uncovered two models: self-regulated strategy development (SRSD) and self-determined learning model of instruction (SDLMI). The following discussion of these two models is based on the findings of a meta-analysis of research on SRSD conducted by Graham et al. (2013) and a similar meta-analysis on SDLMI by Lee, Wehmeyer, and Shogren (2015).

**Self-regulated strategy development.** Graham, Harris, and various colleagues developed and evaluated SRSD as an instructional approach to assisting students with disabilities with strengthening their writing and self-regulation skills (see Harris et al., 2006). The model was developed to help students with one or more cognitive difficulty (e.g., impulsivity, memory, attention) to master, maintain, and generalize content area strategies, such as reading comprehension strategy (Reid et al., 2012). SRSD is an integrative model (addressing affective, behavioral, and cognitive factors) that combines self-regulation processes and includes explicit instruction and development of self-regulation abilities. While implementing SRSD, teachers acknowledge students for their efforts, use of effective strategies, knowledge of the strategy process, self-efficacy, and engagement in learning (Harris et al., 2006). The goal of the SRSD intervention is to support students' academic task completion and motivation (Harris et al., 2006).

The SRSD model includes six basic stages of instruction: explicit instruction in a content area strategy (e.g., reading comprehension strategy), teacher's modeling of the strategy, students' engaging in collaborative peer group practice, and students'

independently practicing the content area strategy as support is phased out. These stages are meant to be flexible in that they can be reordered, combined, deleted, and/or modified to meet teachers' and students' needs. Within these stages, teachers discuss and model self-instruction and develop positive self-statements with the students, such as "I can do this if I use my strategy and take my time" (Harris et al., 2006). Teachers provide support throughout the stages by discussing with students whether additional self-regulation strategies are needed (e.g., goal-setting, self-monitoring, or self-reinforcement) and implementing those when appropriate.

**Meta-analysis of SRSD.** At the time of their meta-analysis in 2006, Graham et al. reported that researchers had conducted more than 115 studies using SRSD with students with disabilities in entire classes, small groups, and tutoring settings. In 2013, Graham et al. identified 82 studies that specifically investigated SRSD writing interventions using true experimental, quasi-experimental, or single-subject design investigations that measured students' writing performance and computed a weighted effect size. These researchers examined the impact of SRSD on students in general (with and without disabilities) and specific kinds of students: LD, EBD, at risk, and poor writers. They focused on three writing measures: quality, inclusion of basic genre elements, and length and analyzed effect sizes for (a) true experiments and quasi experiments ( $n = 29$ ) and (b) single-subject-design studies ( $n = 53$ ).

In experimental and quasi-experimental studies selected in the meta-analysis, Graham et al. (2013) found that SRSD produced large effects for students' quality of writing ( $ES = 1.75$ ) and elements included in writing ( $ES = 2.24$ ), although no significant

effect for length. SRSD was also shown to produce large effects on students' maintenance of quality ( $ES = 1.30$ ) and elements ( $ES = 1.4$ ) and generalization of quality ( $ES = 1.10$ ) and elements ( $1.55$ ). The average  $ES$  for students with LD was 2.37, and 1.97 for students with EBD. In single-subject studies, the average PND for SRSD when all studies were combined was 72% for quality, 75% for elements, and 62% for length. The average post-treatment PND for students with LD was 90 for quality, and for students with EBD it was not reported. The average PND for maintenance of quality was 86% for LD, 81% for EBD; the average PND for maintenance of elements was 86 % for LD and 81% for EBD. Although SRSD is an empirically validated SRL instructional model, the evidence is in the content area of writing and researchers have not provided any empirical evidence that SRSD improves SRL.

**Self-determined learning model of instruction.** According to Wehmeyer, Palmer, Agran, Mithaug, and Martin (2000), the self-determined learning model of instruction (SDLMI) was developed to provide teachers with an instructional model for promoting students' engagement in self-regulated and self-directed learning. In general, SDLMI involves three phases: (a) goal setting, (b) taking action, (c) and adjusting goal or plan. In each phase, students are presented with a problem to solve (e.g., What is my goal? What is my plan? Have I achieved my goal?). To answer these questions, the students ask and answer questions that are modified according to their goals and teacher objectives as teachers provide support to help students self-direct their learning. This problem-solving sequence paired with teacher support is intended to provide students

with a means of regulating their own problem solving, setting goals, making plans, and adjusting actions to meet their goals.

**Meta-analysis of SDLMI.** Lee et al. (2015) conducted a meta-analysis of SDLMI studies between 2002 and 2012 that included peer-reviewed single-case studies in which students with disabilities participated in the intervention, using SDLMI or a modified version (i.e., Self-Determined Career Development Model, SDCM) and which clearly articulated dependent variables and reported PND scores. They found 15 studies that applied SDLMI as an intervention with a total of 50 students with disabilities. The majority, 58%, of the students were identified as having intellectual disabilities, 8% with learning disabilities, 4% with ASD, 10% with EBD, and 20% with other or multiple disabilities. The SDLMI interventions took place in general education classrooms (44%), special education classrooms (10%) or schools (22%), and community workplaces (24%). The SDLMI interventions were of two types: the original version and a modified version.

Overall, the PND was 79.8% ( $SD = 28.6$ ) on a scale from 0-100%, which represented an effective treatment (Scruggs & Mastropieri, 1998). Although students with intellectual disabilities were the most frequently examined in these studies ( $n = 29$ , 58%), the mean PND scores for students with learning disabilities ( $M = 86.6\%$ ) and emotional behavior disorders ( $M = 84.3\%$ ) demonstrated significant effects from SDLMI. SDLMI was also found to be statistically significant across settings: general education classroom mean PND scores was 86.9%.

The authors concluded that self-determination can be considered an evidence-based practice in special education and that SDLMI can promote more positive school



outcomes. Although when practitioners implement SRSD they integrate two metacognitive strategies (self-instruction and self-recording), in this investigation, researchers (Lee et al., 2015) only analyzed students' transition-related outcomes and access to the general curriculum. Researchers have not yet examined the effects of SDLMI on students' academic outcomes (e.g., reading, writing, math), behavioral outcomes (e.g., on-task behavior), or SRL.

### **Discussion of SRL Instructional Models to Improve Students' with Disabilities**

Based on this review of the existing empirical research on SRSD and SDLMI the researcher suggests that both are SRL instructional models with features that appear promising to apply across content areas. For instance, the five phases of the SRSD model, which can be modified, removed, or rearranged, appear to be integral and effective aspects of teaching this strategy, and the combination of self-recording and self-instruction in the SDLMI model provide two metacognitive strategies students can use to support the performance phase of their SRL development (Zimmerman & Moylan, 2009). Although researchers of either meta-analyses explicitly examined how teachers learned to implement SRL instruction and what they need to do to promote SRL in the classroom, their results do provide empirical evidence regarding the use of self-instruction and self-recording with students with disabilities and SRL outcomes, as described below. The following self-instruction study was chosen because it highlights the goodness of fit regarding the pre-service special education teachers' feedback and their students' use of self-instruction. The self-monitoring study was chosen because it supports the use of single-subject research design (SSRD) when examining SRL strategies; SSRD is used in

this study. The following goal setting research was provided to show the impact of this process on students' with disabilities SRL and self-efficacy. And the self-reinforcement study was chosen to demonstrate how this SRL strategy can produce effect results when combined with other SRL strategies.

**Self-instruction.** Several researchers have investigated how self-instruction affects academic achievement, motivation, and self-regulation of students with disabilities. Self-instruction typically involves students softly saying positive self-statements, such as “I can do it” or “I can do this if I use my strategy and take my time” (Harris et al., 2006) in order to internalize self-instruction as part of their regular self-regulatory behavior. Researchers have investigated self-instruction across academic content areas (i.e., math and reading; e.g., Schunk & Cox, 1986; Schunk & Rice, 1984, 1985, 1987, 1989, 1992, 1993). In a seminal investigation on self-instruction and effort feedback, Schunk and Cox (1986) examined how self-instruction and self-efficacy influenced the learning of subtraction skills among sixth through eighth grade students with disabilities ( $n = 90$ ). In this experiment, teachers modeled self-instruction and provided effort-attributional feedback to three different groups of students. Specifically, teachers provided 15 statements of effort feedback over three sessions. In one group, students continuously verbalized subtraction, while in a second group they stopped verbalizing after three sessions, and in the third group they did not verbalize subtraction. The researchers found that the group that learned how to use self-instruction and received effort feedback made significant improvements in self-efficacy and subtraction skills and had higher performance than the groups that did not ( $t(81) = 2.61, p < .05$ ) and teachers'

effort feedback led to students' more rapidly solving problems than did no teacher effort feedback  $t(81) = 2.74, p < .05, MS_e = 1470.01$ . In a correlational analysis, self-efficacy was found to be positively related to skill, ability and effort attributions, and training performance.

**Self-monitoring.** Given that learners must be aware of their actions in order to regulate behavior, according to SRL research, the process of self-monitoring should pair deliberate attention to their learning with recording its frequency or intensity (Mace et al., 2001). Typically, students need to be taught how to self-monitor their (a) attention and (b) performance, especially students with disabilities (Mace et al., 1989; Reid, 1996). Although most researchers have investigated the effects of students with disabilities' self-monitoring either their attention or performance (e.g., Mace et al., 1989; Reid, 1996), recent researchers have conducted studies on this population of students' self-monitoring attention and performance (e.g., Harris, Friedlander, Saddler, Frizzelle, & Graham, 2005).

Self-recording is one way to collect data on students' ability to self-monitor their attention and performance and improve their on-task behavior, academic performance, and accuracy. Self-recording methods include, but not limited to, frequency counts, time sampling measures, and narrations (Mace et al., 1989). For example, in one study, Harris et al. (2005) taught third, fourth, and fifth grade students with ADHD ( $n = 6$ ) how to self-monitor their performance and attention during spelling study behaviors. Researchers evaluated the effectiveness of these two interventions using a counterbalanced, multiple-baseline across-subjects design. The process of self-monitoring attention consisted of the

student and special education teacher discussing the importance of paying attention, followed by the teacher's showing students how to self-monitor to pay better attention, such as by asking "Was I paying attention?" immediately upon hearing a taped tone and entering a tally mark in the yes or no column on their self-monitoring sheet. All six students increased on-task behavior, and four of the six students had positively improved their spelling study behavior. Students' average on-task behavior improved from 55% during baseline to 94% during the self-monitoring performance phase and 92% during the self-monitoring attention phase. Students' academic performance (measured by number of times students correctly practiced a spelling word) soared from was an average of 38 correct spelling words during baseline to an average of 114 during the intervention.

**Goal setting.** Researchers have also investigated the effects of using goal-setting to support students with and without disabilities' self-evaluation of their performance (e.g., Schunk & Rice, 1989; Fuchs et al., 2003). Zimmerman (2000) posited goal setting is an integral component of the forethought phase in the SRL cycle. There are two types of goals: product (e.g., answering questions correctly) and process (e.g., learning to use a strategy to answer questions). Schunk and Rice (1989) found students with disabilities who used process and product goals rated their self-efficacy higher than those students who did not set any goals. Thus, researchers concluded for students to set and achieve goals, the students must set process and product goals and believe they are making progress toward their goal.

Nevertheless, Schunk and Bursuck (2013) posited that perceptions of progress toward a goal may be fostered through the student's self-monitoring of his attention or

performance. For example, Johnson, Graham, and Harris (1997) found students with disabilities improved their reading comprehension when they combined their use of goal setting and self-instruction while receiving SRSD instruction. In Johnson et al.'s (1997) study, 47 student participants with learning disabilities and 12 student participants without were divided randomly into four conditions: strategy instruction, strategy instruction plus goal setting, strategy instruction plus self-instruction, and strategy instruction plus goal setting and self-instruction. Researchers reported results of the study and indicated that the students with disabilities who used goal setting and self-instruction were able to improve their story structure to analyze and remember story content. Additionally, their performance was comparable to their peers without disabilities.

**Self-reinforcement.** Self-reinforcement is when a student provides him/herself a reward for achieving a desired goal and typically results in the behavior reoccurring if the goal was achieved (Mace et al., 1989). Researchers have found that the use of self-reinforcement can increase the likelihood a student will continue to set and achieve goals (Mace et al., 1989). For example, if a student takes intermittent breaks during studying and receives an “A” on a test, the student might be inclined to take breaks when studying in the future. To successfully self-reinforce, Reid et al. (2012) stated, a learner must follow four steps: (a) determine criterion, (b) select reinforcement, (c) evaluate performance, and (d) if/when target behavior is achieved—provide self-reinforcement.

Researchers have also investigated the effects of combining self-monitoring with self-reinforcement on students' academic and behavioral performance (e.g., Schunk & Rice 1989; Fuchs et al., 2003). In a meta-analysis of the literature on the use of four self-

regulation interventions (self-monitoring, self-monitoring plus reinforcement, self-management, and self-reinforcement), Reid, Trout, and Schartz (2005) found three studies (Ajibola & Clement, 1995; Chase & Clement, 1985; Varni & Henker, 1979) in which researchers examined the effects of self-monitoring plus reinforcement on students' academic accuracy and/or productivity or on-task behaviors. Participants in all three studies used self-cuing methods to self-assess, self-record, and self-reinforce their performance. Researchers found large effects of students' use of self-monitoring plus self-reinforcement on their academic performance. The mean effect sizes for academic productivity was 2.66 (Ajibola & Clement, 1995), 1.10 (Chase & Clement, 1985), and 1.83 (Varni & Henker, 1979).

Thus, the previously described studies conducted by researchers who have investigated combinations of SRL strategies (self-monitoring, self-instruction, goal setting, and self-reinforcing) provides evidence that all four SRL strategies can improve students with and without disabilities' SRL and improve their on-task behavior and academic performance. Although in the past researchers have offered clear evidence of effective strategies to teach students with disabilities, they again have not provided models or data on how pre-service general education teachers learn and are trained to promote SRL with their students with disabilities in the classroom.

### **Training Pre-Service General Education Teachers in Self-Regulation Instruction**

It is now common practice for general education teacher preparation programs to require all educators to be adequately prepared to support students with disabilities in accessing the general education curriculum (CEEDAR Center, 2016). According to the

data provided in the CEEDAR Center policy database, 47 states- to date of this writing- currently require pre-service general education teachers to complete clinical experiences in classrooms with students with disabilities and to complete coursework or demonstrate competencies in teaching students with disabilities. Typically, teachers learn or refine pedagogical skills during teacher preparation or professional development and high quality teacher preparation programs help them develop essential knowledge and teaching skills (Ingersoll, 2003). But in a review of the literature on general educators' instructional role in promoting SRL in the classroom, Moos and Ringald (2012) found that although "professional development programs are effective in improving teachers' ability to explicitly teach SRL within their classroom" (p. 11), such programs were rare. Despite the important role pre and in-service teachers can play in providing SRL instruction in the classroom, Moos and Ringald (2012) noted, the types and features of effective teacher development programs that promote it remain largely unexamined. This topical omission in the current literature is especially true for preparing general education teachers to promote SRL skills among students with disabilities, a topic on which no current research was able to be located.

In a review of the literature on training teachers on SRL instruction and students with disabilities use of it (Holden, Rock, & Moos, in preparation), researchers found six publications which included training for pre-service teachers, however, no publication included students with disabilities. Perry and various colleagues have conducted five of the six research projects reported in the available research articles on training pre-service teachers in how to promote SRL among their K-12 students. Three articles by Perry and

associates included in the following brief review were based on data collected during one teacher-training initiative with pre-service teachers from a university in British Columbia and P-12 students in a school district outside Vancouver, British Columbia. This project was part of a larger four-year program of research with multiple research questions whose results were reported in Perry, Hutchinson, and Thauberger (2007; 2008), Perry, Phillips, and Dowler (2004), and Perry, Phillips, and Hutchinson (2006) and described in Perry (2004). Perry, Phillips, and Hutchinson (2006) reported results from Year 1 and 2 of the four-year study, and the other three studies used data collected from those participants to investigate different aspects of these interventions. The sixth research project, Michalsky and Schechter (2013), was conducted with pre-service teachers enrolled in a practicum (coursework and clinical practice) at a university in Israel.

The following summary of the common features of these pre-service SRL teacher training programs first addresses how they teach knowledge of SRL content to pre-service teachers and strategies and then how those pre-service teachers transfer their learning to clinical practice, followed by a discussion of the outcomes of these pre-service SRL training interventions.

### **Knowledge of SRL Content Knowledge and Strategies**

The pre-service teacher training studied in this research were embedded in coursework and clinical practice. In Michalsky and Schechter's study (2013), pre-service teachers participated in a two-semester practicum of coursework and clinical experience, including 24 weekly 4-hour practicums (96 total hours). The SRL pre-service teacher-training program studied by Perry and colleagues took place within a 12-month teacher



education program (Perry, 2004; Perry, Hutchinson & Thaubergger, 2007, 2008; Perry, Phillips, & Dowler, 2004; Perry, Phillips, & Hutchinson, 2006). During that period, the pre-service teachers participated individually in a practicum where they engaged in observation and limited teaching experiences in the fall term under the guidance of a mentor teacher and met as a group in seven professional seminars distributed across the year. At professional seminars, pre-service teachers discussed ways to promote SRL in the classroom and planned SRL instruction with their mentor teachers. In two terms (i.e., winter and spring), pre-service teachers engaged in more teaching experiences in which they implemented instruction that incorporated practices known to promote SRL.

Pre-service teachers in Michalsky and Schechter's program (2013) received explicit instruction in SRL strategies that included directions on how and when to use strategies, how and when to set and pursue goals, and how to monitor them. In this coursework, pre-service teachers also learned about SRL research and the importance of explicitly teaching SRL strategies in the classroom and were afforded opportunities to practice teaching SRL strategies. After teaching a lesson in their clinical practice, the pre-service teachers met with mentors and/or peers to discuss the ways in which they promoted SRL in the classroom and what they learned from their successes and problems.

The emphasis of the program developed by Perry and colleagues was to help pre-service teachers learn how to create high-SRL environments by providing them with instruction on how to afford students opportunities to engage in "(a) complex tasks, (b) choice, (c) control over challenge, (d) opportunities to self-evaluate, (e) instrumental

support to P-12 students, (f) instrumental support from peers, and (g) nonthreatening evaluation” (Perry, Hutchinson, & Thauberger, 2007, p. 36). The participants were also able to observe the SRL environments created by mentor teachers, practice creating SRL environments during clinical experiences, and debrief with mentors, faculty associates, and researchers on how to promote SRL in the classroom. Similarly, the pre-service teachers in Michalskly and Schechter’s (2013) study learned how to arrange classroom environments in order to promote SRL, such as creating opportunities for students to engage in “cooperative learning, constructivist learning, self-direction, and transfer” (p. 68).

### **Transfer of SRL Knowledge to Clinical Practice**

In addition to learning SRL content and strategies in their classroom work and observations, the researchers of the studies examined in this review reported that pre-service teachers were also taught two strategies for transferring their SRL knowledge and skills to their students: scaffolding and systematic reflection.

***Scaffolding.*** All of Perry and colleagues’ reviewed publications directly discussed using scaffolding to foster transfer of the teachers’ learning into their own classrooms. In their program for pre-service teachers, this scaffolding took the form of bi-weekly visits between faculty associates and each teacher dyad to debrief the student teachers on their developing practices, especially those demonstrated to promote or hinder SRL (Perry, Hutchinson, & Thauberger, 2007). The researchers also conducted a periodical professional seminar with a cohort of practicing teachers in which they provided “guided and sustained opportunities for the student teachers to critically examine whether and

how their mentors promoted SRL in their classrooms” and asked them to “consider how practices in the classrooms in which they were observing aligned with or challenged their beliefs about teaching and learning and to design and experiment with high-SRL activities” (Perry, Phillips, & Hutchinson, 2006, p. 242).

In Michalsky and Schechter’s (2013) program for pre-service teachers, scaffolding took the form of observation and analysis of mentor teaching and immediate reflection on their observed lessons. After pre-service teachers completed these observations, they then taught lessons while being observed by their mentor teacher and three peer pre-service teachers, followed by verbal reflection in which they spent 40-minute analyzing their teaching.

***Systematic reflection.*** Another transfer tactic used in the research projects with pre-service teachers was systematic reflection, in which mentors supported the participants’ ability to reflect on or create high-SRL environments. In Michalsky and Schechter (2013), after pre-service teachers completed a science lesson, they participated in systematic reflection in a quiet room in the school setting with their mentor and/or peers in which they followed Schechter et al.’s (2008) five-step reflective format to reflect on problems and successes experienced during the course of their instruction. In Perry and colleagues’ studies, pre-service teachers reflected on SRL activities in their classrooms with their mentors (Perry, Phillips, & Dowler, 2004; Perry, Phillips, & Hutchinson, 2006).

## **Outcomes of Successful Pre-Service SRL Training**

Michalsky and Schechter's (2013) quasi-experimental study examined the effectiveness of the same five-step SRL reflection format with four groups that differed according to sequence and reflection partners: (a) problem- and success- based reflection with one mentor teacher and three peers, (b) problem- and success-based reflection with a mentor, (c) problem-based reflection with a mentor and three peers, and (d) problem-based reflection with a mentor. After coding data drawn from ATES video observation for instances of pre-service teachers' instructional use of SRL strategies (i.e., cognitive, metacognitive, and motivational strategies), the researchers found that the pre-service teachers had increased their ability to promote SRL strategies in the classroom and to arrange SRL learning environments. They found no significant differences in SRL strategy promotion between the four reflective groups in the two explicitness categories (implicit and explicit), but significant main effects for time and explicitness, and significant interactions between both time and reflective group for strategy explicitness (implicit/explicit) in all three SRL types (cognitive, metacognitive, and motivation). Results showed all four groups improved both their implicit and explicit promotion of SRL strategies. Post-hoc analysis of the explicitness effect using Cohen's *d* effect size indicated that participants in all four reflective methods showed better implicit than explicit promotion of SRL strategies. It was also noted that the pre-service teachers who reflected with peers and mentors outperformed the other three groups.

Michalsky and Schechter (2013) also used a learning environment scale (Competence Learning Intervention Assessment model [CLIA]) to measure pre-service

teachers' ability to create SRL environments as measured by cooperative learning, constructivist learning, self-direction, and transfer. The researchers uncovered no significant difference in the arrangement of SRL environment between the four reflective groups, but did find significant main effects for time and environment and significant interactions between time and reflective method. Overall, all four reflective groups improved their ability to arrange SRL learning environments, although pre-service teachers who reflected with peers and mentors outperformed the other three groups.

In their studies with pre-service teacher participants, Perry and colleagues (Perry, Phillips, & Dowler, 2004; Perry, Hutchinson, & Thauberger, 2007; Perry, Phillips, & Hutchinson, 2006) reported that the majority of the participating pre-service teachers had observed mentor teachers who created high-SRL environments and were developing high-SRL practices themselves. Mentor teachers who created high-SRL environments were observed providing their students opportunities to engage in complex SRL tasks, choices, control over challenges, self-evaluation, support from teacher, and support from peers. Observing and analyzing pre-service teachers teaching reading to students, Perry, Hutchinson, and Thauberger (2007) found that they were engaging their students in complex reading and writing tasks and supporting students' development of and engagement in SRL. Almost all of the pre-service teachers' lessons (85%) were given a SRL score of 9 or higher (on a scale of 12), indicating they included SRL instruction to a high degree and that 85% of the tasks observed met criteria for being complex.

In Perry, Phillips, and Dowler (2004), Perry, Hutchinson, and Thauberger (2007), and Perry, Phillips, and Hutchinson (2006), the researchers also examined how the

practices of pre-service teachers aligned with those their mentor teachers, testing the extent to which the mentors' total SRL score predicted the student teachers' total SRL score. These results were less definitive; in Year 1 they found a marginally predictive relation between mentor and student teachers' scores ( $r^2 = .195$ ,  $p. < .076$ ), and Year 2 yielded a non-significant result ( $r^2 = .000$ ,  $p. < .993$ ).

In these three studies, they also examined how teachers' instruction that had high and low SRL tasks influenced elementary students' opportunities to develop SRL, combining mentor and student teacher observation data to test the extent to which the teachers' task rating predicted the presence of the other features of task environments known to promote SRL. The data from both years showed a strong predictive relationship between task complexity and the other features of high SRL environments (Year 1,  $r^2 = .582$ ,  $p. < .000$ ); Year 2,  $r^2 = .651$ ,  $p. < .000$ ). Although there was a strong predictive relationship between mentor and student teachers' practices, seven of the pre-service teachers actually had SRL scores higher than their mentor teachers.

In Perry, Hutchinson, and Thauberger (2008), the researchers examined how faculty associates scaffolded teachers' SRL during post-observation discussions and the content discussed during debriefings among mentors, pre-service teachers, and faculty associates. Specifically, they looked for discourse that supported the pre-service teachers' ability to provide their students with opportunities to make choices, control challenges, and engage in self-evaluation and for features of complex tasks and instances wherein mentors used scaffolding to support the pre-service teachers' understanding of how to implement practices associated with promoting SRL. They found that 80% of post-

observation discussion contained some discourse about promoting SRL and that faculty initiated the conversation 71% of the time, although the amount and content of discussion varied among the faculty associates. Pre-service teachers who received more explicit scaffolding from their faculty associates received higher overall scores for promoting SRL than student teachers receiving more implicit scaffolding; researchers found a statistically significant relationship between SRL content discussed during debriefings and the faculty associate who mentored them ( $ES = .41$ ). Their coding of post-observations identified ten conversational patterns used by the faculty associates to scaffold pre-service teachers' promotion of SRL: using explicit language, using examples or suggestions, presenting lesson feedback in terms of SRL, asking process and metacognitive questions, prompting for transfer, modeling, bringing in the mentor teacher to reinforce SRL, reinforcing SRL if someone else introduced the topic, highlighting SRL in written observations, and using an interview outline that emphasizes SRL.

### **Discussion of Current Pre-Service Teacher SRL Trainings**

Despite the useful findings of the research reviewed above, there still remains a dearth of research on the impact of SRL training for pre-service teachers on K their-12 students, and particularly on students with disabilities, and a lack of comparable measures and numerical data, which makes drawing conclusions across available studies difficult. That the studied SRL training improved not only K-12 students' SRL skills but their ability and confidence to take on more challenging tasks and use SRL strategies to cope with difficulties leads the researcher to suggest that students with disabilities can learn SRL when their pre-service general education teacher is trained in SRL instruction and

that it would be beneficial for their general and special education teachers to learn how to provide SRL instruction.

The most effective pre-service teacher SRL training program appeared to be Michalsky and Schechter's (2013). All four of their reflective groups showed statistically significant improvements in implicit and explicit SRL strategy instruction, which was correlated with systematic reflection and embedded within the pre-service teachers' clinical practice. The most effective method of reflection across these studies was pre-service teachers' reflecting with peers and mentors. Although Perry and colleagues' SRL training framework appears to be a promising approach in which to train teachers in promoting SRL, given that pre-service teachers who received explicit mention of SRL from a faculty associate in their post-observation debriefing increased their ability to create high-SRL environments, the researchers did not investigate the effect of independent variables such as self-regulated learning coursework on pre-service teachers' SRL knowledge or skills.

Despite the fact that learning SRL content knowledge and skills, creating high-SRL environments, and transferring SRL teacher knowledge and skills to the classroom have been shown to be features of successful teacher SRL training, still much remains unknown, such as which methods of transferring SRL teacher knowledge are most effective and under what conditions.

### **SRL Training and Transfer During Clinical Practice**

As noted in Chapter I, Figure 2 illustrates the SRL *e*Coaching model was designed to support a pre-service general education teacher's SRL training and transfer



during clinical practice. In what follows, the literature is reviewed according to the three components of the model: online SRL training, *e*Coaching, and self-reflection.

### **Building Knowledge of SRL**

Pre-service general education teachers can build knowledge of SRL by participating in multimedia learning via an online training module. Mayer (2009) described multimedia instruction as instruction that consists of words (e.g., spoken or written) and graphics (e.g., video clips or illustrations) designed to promote learning; in this dissertation study multimedia instruction is intended to promote pre-service special education teachers' learning of SRL (see Mayer, 2009), specifically by building their knowledge base in SRL. Multimedia learning is important because unlike the studies described previously regarding pre-service teacher training in SRL, the participant in this study was not enrolled in coursework or seminars over the course of one or two semesters. Thus, this study helped to determine to what extent multimedia learning is an option to traditional courses and seminars for building relevant SRL content knowledge.

Joyce and Showers (1980), however, posited that teachers often do not transfer their learning to practice; this they called the transfer gap and recommended classroom coaching as a means to address the transfer gap between what teachers learned during their professional development and how they applied this learning to their classroom pedagogy. To this end, as mentioned in Chapter I, they developed a coaching model that included four components: study of theory and best practice, observation of best practice, one-on-one coaching, and group coaching.

In this study, the researcher designed the online module training to reflect the study of theory of practice and also the observation of theory and practice (Joyce & Showers, 1982) as related to SRL instruction. In the pilot study, the SRL training was developed and trialed with in-service teachers in the form of a PowerPoint (see Appendix A). The researcher embedded video clips (i.e., self-monitoring, self-instruction, and imagery) into the SRL training PowerPoint to provide teachers an opportunity to observe SRL instruction. The researcher recorded the delivery of the presentation using screen recording software, sent the recorded PowerPoint to teachers, and the teachers viewed the PowerPoint presentation (with the researcher's voice over) in their classrooms. After teachers viewed the PowerPoint the researcher Skype called the teachers, provided clarification as needed, and answered teachers' questions. Similar to the pilot study, pre-service special education teachers studied the theory and best practice of SRL by learning about characteristics of self-regulated learners, rationale for promoting SRL during instruction, and the terms and definitions of SRL strategies (i.e., self-monitoring and self-instruction). Then, in the online SRL module training, a pre-service general education teacher observed theory and practice by viewing updated video clips on self-monitoring and self-instruction.

In this study, the researcher made changes to this original SRL training to reflect Mayer's (2014) "12 research-based principles for how to design multimedia" (p. 62) by applying instructional design principles known to be effective at supporting three kinds of processing during multimedia instruction: reducing extraneous processing, managing essential processing, and fostering generative processing (see Mayer, 2014). For example,

the researcher reduced extraneous processing by pruning interesting but irrelevant material and breaking each page into very short descriptions of actions (versus long paragraphs). Also, the researcher designed the multimedia instruction to reduce extraneous processing by providing the pre-service general education teacher with outlines and headings, graphics, and narrations of the SRL content and strategy information. Second, the researcher updated video clips of SRL strategies (i.e., self-monitoring and self-instruction) to view at her own pace, which affords her the opportunity to manage essential processing. Also, the characteristics of self-regulated learners was added and definitions to provide a way to the pre-train teacher (a means to managing essential processing) before she observed best practice. Last, the researcher designed the online module training with conversational language (e.g., “your students’ self-monitoring” or “your students’ self-instruction”) to promote generative processing.

### **Supporting Transfer of SRL Knowledge**

Another potentially powerful means of supporting teachers’ transfer of their SRL learning to practice is through coaching. In the context of pre-service teacher development, *coaching* is broadly defined as the process of supporting teachers while they analyze curriculum and content, determine the most effective academic and behavioral approaches, and plan to maximize students’ responses so that performance improves (Joyce & Showers, 1982). Coaching in this context typically involves a relationship between an expert (e.g., university supervisor, lead teacher, or skilled peer) and pre-service or in-service teachers working to meet a specific goal, such as implementing evidence-based practices (Kretlow & Bartholomew, 2010). Typically, a

coach observes lessons, provides feedback, directs teachers toward models of best practice, and provides follow up-support (e.g., after observation debriefing) to improve instruction and student outcomes (Denton & Hasbrouck, 2009; Joyce & Showers, 1982).

Coaching in a classroom setting requires knowledge and expertise (e.g., curriculum, content, school culture and dynamics), interpersonal skills (e.g., prioritizing, resolving conflict, problem solving), and technical skills (e.g., planning and assessing, observing and collecting data, providing immediate feedback) derived from supervisory practices (Glickman, Gordon, & Ross-Gordon, 2014). Coaching can enhance supervisory practices by delivering immediate feedback and providing follow-up support.

As noted previously, Joyce and Showers (1980) developed a four component coaching model (i.e., study of theory and best practice, observation of best practice, one-on-one coaching, and group coaching) to address the transfer gap that occurs between learning and practice. For the purposes of this study, the researcher reviewed the literature and, in this section, highlighted one-on-one coaching as a means to close the learning to practice gap. Specifically, professional development with coaching has produced an effect size of 1.42, in contrast to professional development with no coaching, which produced a 0.0 effect size (Joyce & Showers, 2002). The practice of one-on-one coaching in the classroom has evolved over the years, particularly through the use of technology. In the following sub-sections, the researcher describes this transformation followed by empirical evidence of its effectiveness in training pre-service special education teachers to use pedagogical skills and improve K-12 student outcomes.

**Technology enabled coaching.** The incorporation of technology into coaching has been adopted as a supervisory practice in a variety of fields, such as psychology, sports, education, and medicine, as a way to reduce such barriers such as time, travel, and cost. For example, Korner and Brown (1951) employed a sound system for directing medical students without interrupting the process under observation. Herold, Ramirez, and Newkirk (1951) extended this notion of uninterrupted observations to the field of teacher education by justifying how *en vivo* supervision could greatly enhance the effectiveness of supervisors employing a portable, flexible, and well constructed radio communication system (i.e., a “mechanical third ear”). Additional research into technology-enhanced supervision includes van der Mars’ (1987) investigation of the effects of pre-recorded audio cueing on pre-service teachers’ use of verbal praise, which served as a starting point for studying variables associated with *en vivo* supervision, such as feedback. Nonetheless, the use of a mechanical third ear did not make its way substantively into the traditional supervisory coaching model until the turn of the 21<sup>st</sup> century.

The U.S. Department of Education’s Office of Special Education Programs (OSEP) is promoting a larger technology initiative to help teacher preparation programs prepare teachers to learn from technology and integrate it into their teaching to benefit P-12 students. An Innovation Configuration (IC), a tool used to identify and describe major components of a practice or innovation, was designed by Dieker, Kennedy, Smith, Vasquez, Rock, and Thomas (2014) to support teacher preparation programs’ use of evidence-based research and technologies, specifically in six broad categories: podcasts,

video case studies, online delivery of content, technology-based support, eSupervision and feedback (i.e., eCoaching), and virtual learning or simulation. These researchers have found evidence that *eCoaching* is a promising practice, however, they noted that practice exceed scientific evidence (Dieker et al., 2014). Thus, this researcher posited the results of this study contribute to the scientific evidence of integrating technology into supervisory practices, specifically the use of SRL *eCoaching*. Evidence of *eCoaching* is provided in the following sub-section.

### **Research on Effective *eCoaching***

Researchers have been investigating the use of technology in supervision in teacher preparation for close to fifty years (see Herold, 1971). Using the earlier work of Korner and Brown (1957) and van der Mars (1987), Giebelhaus (1994) conducted a quasi-experimental investigation with 22 elementary education teachers and cooperating teachers in which the treatment group received audio cuing or prompting for teacher behaviors via BIE device from their cooperating teacher. From the results, Giebelhaus showed that student teachers' use of clarity behaviors immediately changed during the teaching process while receiving prompts. Since Giebelhaus's (1994) unprecedented use of technology to provide immediate feedback to improve pre-service teacher performance, research on coaching in teacher preparation has shown an increased use of technology during supervisory practices.

However, it was not until Scheeler and colleagues' (2004) review and analysis of 10 studies on providing performance feedback to teachers that the importance of immediate feedback became clear within the field. Scheeler and her colleagues found that

(a) immediate feedback was more effective at positively affecting targeted teaching behaviors than delayed feedback, (b) reinforcement of appropriate attempts was critical in attempting to change teacher behavior through feedback, and (c) feedback that was positive, corrective, and specific was more effective than non-corrective and general feedback. More recently, Solomon, Klein, and Politylo (2012) called Scheeler et al.'s (2004) findings into question because they were not based on pooled statistical results. In their meta-analysis on the effect of performance feedback on teachers' treatment integrity Solomon et al. (2012) found the effects of immediate feedback ( $r = .73$ ) and feedback delivered within 24 hours ( $r = .71$ ) were slightly more effective than feedback delivered once a week ( $r = .65$ ). Nevertheless, Scheeler et al. (2004) and Solomon et al. (2012) support the notion that (a) teachers need performance feedback to improve teaching behavior, and (b) feedback is best delivered immediately (i.e., within 24 hours) is more effective than delayed.

Building on Scheeler et al. (2004) and other studies, Rock and colleagues used advancements in mobile technology and interactive video conferencing to pioneer an online bug-in-ear system (BIE) for delivering discreet, immediate virtual feedback to teachers during their supervisory practices. Advanced online Bug-In-Ear (BIE) technology used four components—webcam, Bluetooth USB adapter, Bluetooth earpiece, and Skype—to provide immediate in situ feedback to teachers. To date of this writing, the practice is currently referred to as *eCoaching* (formerly called virtual coaching) and is defined as the “provision of immediate feedback to teacher trainees, through advanced online BIE technology, during real-time classroom instruction” (Rock et al., 2014, p. 37).

For the purposes of this study, the researcher conducted a search of the literature and identified only six studies in which researchers investigated the effects of *eCoaching* with pre and in-service teachers: Ploessl and Rock (2014), three studies by Rock et al., (2009, 2012, 2014), one by Scheeler, McKinnon, and Stout (2012), and one by Coogle, Rahn, and Ottley (2015). Rock et al. (2009, 2012, 2014), in their studies, embedded *eCoaching* within special education teacher preparation program during supervisory practice and included pre- and in-service teachers. Scheeler et al. (2012) and Coogle et al. (2015) included only pre-service teachers; in Scheeler et al.'s (2012) study they were undergraduate special education majors who taught in elementary schools and in Coogle et al.'s (2015) study they were enrolled in an undergraduate Early Childhood Special Education licensure program and taught children with and without disabilities ranging from three to five years old in separate inclusive public-preschool classrooms. Although limited in number, these studies have provided evidence of the significant effects *eCoaching* can have on teacher and student performance.

Rock and colleagues used mixed methods research designs (i.e., sequential explanatory, 2009; explanatory strategy, 2012, 2014) first to investigate the effects of *eCoaching* in a proof of concept study with 15 in-service teachers and their K-12<sup>th</sup> grade students (2009) then replicated and extended the study with 13 new in-service teachers and their K-6<sup>th</sup> grade students (2012). Later (2014) they examined the longer-term effects of *eCoaching* by following the teachers from the 2012 study 2 years after receiving *eCoaching* (specifically, they used recorded observations from Year 1 of supervision without *eCoaching*, Year 2 of supervision with *eCoaching*, and 2 years after



completion of the program without *eCoaching*). The *eCoaching* provided to pre and in-service teachers in these studies afforded teachers immediate, positive, corrective, and specific feedback and during 30-minute reading lessons.

Using a single subject research design (i.e., multiple probe across participants) Scheeler et al. (2012) investigated *eCoaching* and the provision of immediate online feedback for 15 minutes to teachers as they were teaching reading and math. In a single-subject study employing a multiple probe design across participants the researchers evaluated the effects of delayed versus immediate verbal feedback. Delayed feedback was provided five to 15 minutes after the lesson, while immediate feedback was delivered within three seconds of the occurrence of teachers' target behavior using verbal feedback consisting of short phrases (e.g., "Nice job correcting the error").

Ploessl and Rock (2014) also used a single subject research design (i.e., ABAB withdrawal design) to examine the use the effect of *eCoaching* and immediate feedback (i.e., encouraging, correcting, or questioning feedback) to co-teachers during co-planned and co-taught 30-minute lessons. Researchers did not identify the specific content area of instruction being investigated, but noted that the *eCoaching* was in same content area during each session.

Likewise, Coogle et al. (2015) used a single subject research design (i.e., multiple- baseline, multiple-probe) to examine the effects of *eCoaching* on pre-service special education teachers' use of communication strategies during small-group activities, such as "an insect dominoes game, an activity measuring plans, playing in sand table with funnels as scoops" (p. 107). . In each *eCoaching* session, the *eCoach* prompted two out of

four type of communication strategies (i.e., choice making, in sight out of reach, sabotage, and wait time). Coogle et al. (2015) noted the *e*Coaching in these sessions was consistent with Scheeler et al.'s (2004) feedback prompts: affirmative or corrective.

**Variables.** In each of Rock and colleagues' studies (2009, 2012, 2014), researchers examined changes in student and teacher behavior and classroom climate as a result of the *e*Coaching. Teacher behavior was defined and measured by use of low- and high-access instructional practices (Feldman & Denti, 2004). Low-access instructional practices included the frequency of hand raising, students' blurting out answers as soon as the teacher posed a question, and round-robin or teacher-led reading. High-access instructional practices included frequency of choral/nonverbal responses and partner strategies. Student behavior was defined and measured by their academic engagement--that is, their participation in whole group reading instruction (Rock et al., 2009). Classroom climate was defined and measured by teachers' use of praise, redirects, or reprimands and their students' on-task behavior). Researchers used qualitative methods to measure disruption and benefits associated with *e*Coaching by coding teacher written reflections (Rock et al., 2009, 2012) and interviews (2014).

In their study, Scheeler, McKinnon, and Stout (2012) expanded previous research (Scheeler et al., 2004) with Bug-In-Ear, using Rock et al.'s (e.g., Bluetooth and webcam) online technology, although they did not video capture participants' responses. Scheeler et al. examined the effects of *e*Coaching on five pre-service special education teachers' use of three-term contingency (TTC) trials looking at antecedent, student response, and feedback to the student from the teacher.

Continuing this trend, Ploessl and Rock (2014) examined the effects of *eCoaching* on three co-teaching dyads of in-service teachers (one general and one special educator) during co-planning and co-teaching. Researchers measured the number of co-teaching models (i.e., one-teaching-one observing, alternative teaching, parallel teaching, teaming, one teaching-one assisting, station teaching), student-specific accommodations and modifications, and PBIS planned for and used by co-teachers.

Coogle et al. (2015) examined changes in pre-service special education teachers' use of communication prompts and their responses (i.e., used or not used) to *eCoaching* feedback during 10-minute sessions. Researchers measured the *eCoach's* prompts, the prompt type, and the pre-service special education teachers' strategy use. Researchers also measured pre-service special education teachers' spontaneous use the communication strategy without an *eCoach* prompt. Coogle et al. recorded all *eCoaching* sessions and collected data live (i.e., coded data during the *eCoaching* session), then a second observer reviewed the video recordings and checked for coding accuracy.

**Reflection.** Rock et al. (2009, 2012, 2014) and Scheeler et al. (2012) mentioned the importance of reflection (i.e., presence of or absence) as one-way teacher participants could improve their instructional practice. For instance, researchers in Rock et al.'s (2009, 2012, 2014) studies, found one theme from teacher participants written reflection was that *eCoaching* helped them “engage in a cycle of reflection that resulted in important professional insights” (Rock et al., 2009, p. 75). On the other hand, Scheeler et al. (2012) noted a limitation of their study was the lack of time teachers had to reflect on their teaching. Scheeler et al. (2012) mentioned reflection was a way to promote pre-

service teachers' lifelong learning and after a lesson pre-service teachers could write down their reflections and discuss with a coach/supervisor. Thus, Scheeler et al. (2012) recommended researchers consider the addition of a reflection component to their studies on immediate feedback with pre-service teachers.

**Results.** Researchers who have investigated the effects of the *eCoaching* have demonstrated that the improved behaviors of teachers and their K-12<sup>th</sup> grade students are results of *eCoaching* interventions. Rock et al., (2009, 2012) found that teachers displayed a statistically significant increase in high-access instructional practices and decrease in low-access strategies K-12 students showed a statistically significant improvement in engagement (i.e., improvement from 73.8% to 92.7%). (Rock et al., 2009). Additionally, Rock et al.'s (2014) follow-up study demonstrated that the participating teachers were able to maintain their improvements in teaching behavior as a result of *eCoaching*. The researchers found a statistically significant trend across all three data points (before, during, after *eCoaching*) in increased high-access instructional practices (ES = 0.85) and teachers' use of praise (ES = 0.49) and a statistically significant trend in decreased low-access strategies (ES = 0.73). Although there was not a statistically significant trend in teachers' use of redirection (ES = 0.13), the results did show a statistically significant increasing in student engagement (ES = 0.58). In other words, K-12 student engagement, which is correlated with greater academic achievement, continued to increase after the teachers' participation in *eCoaching* with BIE ended.

Similar results were found in Scheeler et al.'s (2012) study, which found that four of the five participating teachers maintained their initial improvements in teaching

behavior during the maintenance phase. Specific feedback was found to improve teachers' behavior more than delayed feedback, but student outcomes were not measured.

Although co-teachers increased a greater number of co-teaching models in their planning and implementing, Ploessl and Rock (2014) found that the intervention was very effective for the first dyad (PND = 100%), but not effective for the second (PND = 0%) and the third dyad (PND = 1%). Researchers reported all three dyads increased the fidelity of their use of co-teaching models, meaning that they used what they had planned, and their use of student-specific accommodations. Specifically, the intervention was very effective for all three dyads (PND = 100%, 75%, & 100%, respectively).

Although *eCoaching* was shown to be an effective intervention for improving student specific accommodations, the researchers revealed that teachers were unable to maintain these results; all three dyads decreased their number of redirects and maintained at least a 4:1 ratio of descriptive praise to redirects. Student engagement was found to increase an average of 96%-97% across the three dyads, but again decreased when intervention was withdrawn. Using social validity measures (i.e., teacher interviews) to evaluate the impact of *eCoaching* on students, teachers reported improved academic achievement (i.e., pre/post test assessments) and engagement.

Across all pre-service special education teacher participants in Coogle et al.'s (2015) study they increased their spontaneous use of communication strategies. The *eCoaching* intervention proved to have a strong effect as evidenced by an effect size of 86-100% across all participants. Although researchers did not measure student outcomes in this study, pre-service special education teachers indicated the immediate feedback

delivered via online BIE *eCoaching* helped improve the quality and quantity of their children's communication.

### **Supporting Reflection on SRL Knowledge and Practice**

As noted in Chapter I, Allen and Eve (1968) argued that pre-service teachers must learn to teach in three stages: planning, teaching, and reflecting. The reflection component is the last stage of the *eCoaching* model, as illustrated in Figure 2, and is necessary because, as Zimmerman (2002) posited, self-regulation is cyclical, and as such pre-service teachers' knowledge and use of self-regulation is impacted by their self-reflection. Thus, pre-service general education teachers must be afforded opportunities to reflect on their SRL knowledge and the transfer of this knowledge after they teach students with disabilities. Schön (1983), one of the leading scholars on reflection, theorized that individuals engage in reflection to spur a cycle of continuous learning because experience alone does not necessarily lead to learning. Reflection, he noted, is a skill that is not necessarily innate, but developed by individuals as they apply learned knowledge to new and novel situations.

Drawing on Schön's (1983) theory of reflection, Etscheidt, Curran, and Sawyer (2012) have argued that teacher preparation programs must focus on implementing intentional reflection in order to support pre-service teachers' ability to develop awareness of decisions they make during teaching (reflection in action) and critical analysis of their practice after teaching (reflection on action). Accordingly, pre-service teachers must receive support when they reflect on new and ambiguous situations. Researchers have found that pre-service teachers' engaging in reflection with support

yields higher levels of reflection (Dawson, 2006; Hamlin, 2004) than without support (Delandshere & Arens, 2003), comparatively. Since Schön's early work, according to Etscheidt et al. (2012), several teacher educator researchers (Gore & Zeichner, 1991; Stanley, 1998; Van Manen, 1991; Ward & McCotter, 2004) have developed frameworks and models to support pre-service teachers' reflection. Despite these several models, all researchers agree that pre-service teachers' must be afforded reflective opportunities throughout all aspects of teacher preparation (Ostorga, 2006).

Zeichner argued that practices during supervision should foster pre-service teachers' reflection because it supports their ability to make connections between course learning and field experiences (Zeichner, 1987, 2010). To integrate reflection into teacher preparation practices, Etscheidt et al. (2012) recommended, programs should include constructivist models of reflection (Ross & Blanton, 2004) and be oriented toward deliberative reflection as a means to support pre-service teachers' development of problem-solving and decision-making skills. Engaging in constructive reflection allows pre-service teachers to think about their learning and experiences, develop new knowledge and meaning to apply to their future teaching, and focus on their learning and student outcomes (Ward & McCotter, 2004). Moon (1999) proposed teachers' use of reflective questioning to support constructivist reflection to enable them to think about what they did that helped their students so they can continue those actions in the future and what may not have gone well so that they can avoid that in the future (Roffey-Barensten & Malthouse, 2013).

Moreover, the use of technology can support pre-service teachers' effective and immediate self-reflection. Most researchers in this area, however, have examined the impact of pre-service teachers' use of video recorded lessons during reflection (e.g., Harford, & MacRuairc, 2008; Gelfuso & Dennis, 2013), and although video reflection can provide solutions to the problems that occur when pre-service teachers' rely on their memory (e.g., discrepancies between memory and experience, over-reliance on prominent events and ignoring less noticeable but important events), it still does not necessarily promote immediate reflection. A promising means of using technology to improve pre-service teachers' reflection, however, is the use of *eCoaching* to provide pre-service teachers' immediate reflection which, as Rock et al. (2009, 2012, 2014) have pointed out, triggers a cycle of reflection for teachers.

Not only is reflection during teacher preparation an established practice that supports pre-service teachers' application of learning to practice (Grossman, 2008; Ostorga, 2006), but it is also a disposition and performance competency (Council for Exceptional Children, 2009; Interstate New Teacher Assessment and Support Consortium, 2013). On the basis of professional standards and research on its effectiveness in all aspects of teacher preparation, therefore, pre-service teachers must be afforded immediate opportunities to reflect on their learning and transfer of SRL knowledge and skills.

### **Conclusions**

After careful review and examination of published self-regulation and related pre- and in-service teacher training research, several general conclusions can be drawn.



1. Researchers and policy makers understand the urgency of integrating non-cognitive skills into educational policy and practice (ESSA, 2015; Gabriela et al., 2015).

Self-regulation is a non-cognitive skill that has been shown to correlate with higher academic achievement and better life outcomes, such as career status and general well-being (Bryan, Burstein, & Bryan, 2001; Nordgren & Chou, 2001).

2. Researchers who have investigated SRL instructional models (SDLMI and SRSD) provide empirical evidence that students with disabilities can be taught self-regulation strategies, although researchers who have conducted studies with SRSD have provided little evidence across settings and SDLMI researchers have offered little evidence regarding students with high-incidence disabilities. Researchers have used the SRSD model to offer guidance for how teachers can provide SRL instruction and other researchers have used the SDLMI model to provide evidence that a combination of self-instruction and self-recording strategies can produce large effects on SRL and academic achievement of students with disabilities.

3. There is no empirical evidence on how to best prepare pre-service general education teachers to provide SRL instruction to students with disabilities, although the researcher can glean information from a handful of successful SRL training programs. When looking at the four existing studies on teacher SRL training programs, the researcher identified common features—teachers’ learning SRL content knowledge and skills, creating high-SRL environments, and supporting the transferring of learning to through scaffolding and reflection. Although these programs shown to be successful in improving teachers’ promotion of SRL and students’ own SRL strategies during difficult

tasks, none of the researchers who studied pre-service special education teachers measured outcomes in terms of students' SRL. Whereas the teachers in this previously described research were trained to promote SRL, none of the training programs included training pre-service special education teachers in how to use a combination of strategies to support the SRL skills of students with disabilities. Thus, the first step for pre-service general education teachers to improve her practice of promoting SRL in the classroom is to build her SRL knowledge, such as through an online module training. Yet, researchers have provided empirical evidence to suggest that learning SRL knowledge alone will not be enough to support pre-service special education teachers' transfer of learning to practice.

4. The use of *eCoaching* during supervision is a promising practice that has proven to positively affect pre and in-service general and special education teachers' pedagogical skills and the on-task behavior and academic performance of students with disabilities. The researchers who conducted the six empirical studies on *eCoaching* with teachers in training demonstrated that this approach has a significant impact on teacher and student behavior. Additionally, researchers of four of these studies provided evidence that teacher reflection is an important aspect to *eCoaching* because it can support teachers' improvement of instructional practices and continuous lifelong learning. Yet only three of these measured student outcomes and none examined the effects of *eCoaching* on teachers' SRL instruction.

5. Although it has been shown that pre-service special education teachers' reflective practices can support their transfer of learning to practice and continuous

learning, the skill of reflection does not always come naturally to pre-service teachers and therefore providing support during reflection leads to higher levels of reflection than providing no support. Researchers have examined the use of technology to support pre-service teachers' reflection, but most of this research has examined video reflection. Whereas researchers who have examined *e*Coaching have discussed how this approach triggers a cycle of reflection in teachers, none have examined the effects of *e*Coaching on teachers' reflection regarding SRL instruction.

At a time when policy makers are urgently calling for K-12 students to be college- and career-ready, teacher educators must prepare special and general education teachers who can teach non-cognitive skills that have been proved necessary to success in school and beyond. To do so, however, more research investigating the impact of teacher preparation approaches on student outcomes is needed. The purpose of the proposed study is to teach non-cognitive SRL skills to a student with a disability to help him improve his learning and academic outcomes. The researcher expands on the current research into teacher SRL training and *e*Coaching research by studying the effects of SRL training + *e*Coaching on a pre-service general education teacher's effectiveness in helping a student with a disability to learn and deploy SRL strategies, as measured by student outcomes.

## CHAPTER III

### METHODS

The purpose of this study was to examine the effects of receiving SRL training through an online module + *e*Coaching on the use of self-regulation strategies upon a pre-service general education teacher's and her student's actual use of self-regulation strategies in the classroom. In this chapter the researcher describes the rationale and research questions for this dissertation study and the research design, measurement, data collection procedures, and data analysis.

#### **Rationale and Research Questions**

According to Paris and Paris (2001), self-regulation researchers need to link theory to practice and investigate practical interventions with methods teachers can replicate in their classrooms and strategies students can integrate into their learning. The literature base for self-regulated learning for students with disabilities has linked theory to practice and provided practical strategies for these students to use in the classroom (e.g., Reid et al., 2012; Schunk & Bursuck, 2014). As researchers have noted, however, professional development often does not provide teachers with the necessary means to promote SRL in the classroom (Moos & Ringald, 2012), and there remains no researchers who have examined teachers' training and implementation of SRL instruction and the SRL outcomes of their students with disabilities (Holden, Rock, & Moos, in preparation) that would further the implementation of practical interventions. Educational researchers

must follow four stages of research to provide the best evidence for appropriate practice: (a) initial hypothesis and exploration; (b) controlled experiments and demonstrations; (c) randomized field trials, and (d) identification of variables adopted for practice (Levin, O'Donnell, & Kratochwill, 2003). As shown in Chapter II, the existing research into teachers' SRL instruction and students' SRL strategy has made enough progress in all four stages of that research agenda. By comparison, research on teacher instruction of SRL strategies remains in the first two stages. The researcher intended to contribute to the current theoretical and empirical evidence and suggest fruitful directions for future work in the first two stages

### **Single Subject Research Design (SSRD) in Special Education**

According to Horner, Carr, McGee, Odom, & Wolery (2005) SSRD contributes to the growth of evidence-based practices in special education because it can validate causal relationships between independent and dependent variables and be used with a small sample wherein participants are able to serve as their own control. When using SSRD, a researcher repeatedly measures participant's target behavior as they are exposed to each condition of the study (in this case, the presence and absence of online SRL training + *e*Coaching) and uses this behavioral change data to evaluate the effects of the intervention (Cooper, Heron, & Heward, 2007). This methodology also allows researchers to generalize the intervention by collecting data in at least one other setting (e.g., math instruction) outside the treatment setting (e.g., reading instruction). However, generalizability remains limited because of the small sample size.

Since special education students represent a small population within the larger population of U.S. P-12 students, SSRD is an appropriate research methodology for this study. Additionally, when a variety of researchers establish a body of single subject designs across settings and geographic locations, collectively the results may lend support the given intervention as an evidence-based best practice in special education (Horner, 2005).

### **Single Subject Research on Self-Regulation Strategies**

Previous researchers who have used single subject research designs in the two self-regulation strategies chosen for this study of students with disabilities, self-instruction and self-monitoring, limited their investigations to self-monitoring (e.g., Falkenberg & Barbetta, 2013; Harris et al., 2005; Rafferty, 2012). In these representative studies, researchers used multiple-baseline designs across participants to evaluate the effects of self-monitoring on students' on-task behavior and oral reading fluency (Rafferty, 2012), completion of math and spelling homework (Falkenberg & Barbetta, 2013), and practice of spelling words and attention (Harris et al., 2012). Student participants in all these studies improved their academic performance and/or attention, but none have investigated teachers' SRL strategy instruction and its effects on students' SRL strategy use. In this study, a pre-service general education teacher completed an online module and an expert *eCoach* then provided feedback to her during and following classroom instruction to promote not only her SRL instruction, but also her third grade student with a disability's SRL strategy use.

## **Research Questions**

As stated in Chapter I, the researcher in this study investigated the following research questions:

RQ 1: How does a pre-service general education teacher's participation in online SRL training + *e*Coaching impact her use of those strategies, during classroom instruction?

RQ 2: How does a pre-service general education teacher's SRL strategy use during instruction impact her student's use of those strategies?

RQ 3: How does a pre-service general education teacher's SRL strategy use during instruction impact her student's engagement in learning?

RQ 4: How does a pre-service general education teacher's participation in online SRL training + *e*Coaching impact her own self-reflection?

## **Research Design**

The researcher used a single subject research design because it allowed her to analyze effects with one participant. Specifically, a multiple probe design across behaviors was employed, as it can demonstrate cause-effect relationships and lends itself well to functional analyses of behavior, which allowed the researcher to make quantitative research-based decisions that the intervention was (or was not) responsible for changes in the target behavior (Horner et al., 2005). The multiple probe design across behaviors is well suited for applied research as it has no withdrawal of intervention and saves effort required to record and score observational sessions (Kennedy, 2005). In general, single-subject research methodology is a research approach suited for behavioral science research because it focuses on individual performance and evaluation of

participants through graphic displays and tables (Gast, 2010). It also has been used in previous self-regulation research with students with disabilities using self-recording (e.g., Rafferty, 2012) and self-instruction (e.g., Lee et al., 2015).

This study was designed to adhere to Kratochwill et al.'s (2010) single case design standards (developed for The What Works Clearinghouse) to *Meet Evidence Standards*, specifically with *Strong or Moderate Evidence of a Causal* relation. In accord, the researcher planned to adhere to the following design criteria:

- (a) The researcher must systematically manipulate the independent variable (i.e., intervention) and determine when and how the independent variable conditions change (p. 14).
- (b) Each outcome variable must be systematically measured over time by more than one assessor, and the researcher needs to collect inter-assessor agreement in each phase and on at least twenty percent of the data points in each condition (e.g., baseline, intervention) and the inter-assessor agreement must meet minimal (p. 15).
- (c) The researcher must include at least three attempts to demonstrate an intervention effect at three different points in time or with three different phase repetitions (p. 15).
- (d) For a phase to qualify as an attempt to demonstrate an effect, the phase must have a minimum of three data points (p. 15).



## **Participant Recruitment**

Following Gall et al (2007), the researcher (a doctoral student) used purposeful and convenience sampling to recruit and select teacher and student participants that suited the purpose of this study. Also, in single-subject research, Horner et al. (2005) recommended intervention effects be demonstrated with at least three different participants in different settings to enhance external validity of results. However, because of the threat of attrition the researcher intended to purposefully recruit a minimum of five pre-service special teacher participants enrolled in a teacher preparation program and partaking in a clinical experience.

When this study was proposed in January 2016, the researcher intended to recruit pre-service special education teacher participants and K-12 student participants. The researcher was looking for pre-service special education teachers enrolled in a teacher preparation program, majoring in special education (i.e., dual or straight special education), and completing an assigned clinical experience in a public school in North Carolina. Also, the researcher was looking to recruit K-12 student participants enrolled in a North Carolina public school, male and/or female, with high incidence-disabilities, and taught by the pre-service special education teacher participant. The researcher intended to conveniently recruit pre-service special education teacher participants (dual or straight special education majors)—from a medium sized public doctoral-granting residential university with a special education teacher preparation program in the central region of North Carolina—enrolled in a clinical placement in two counties because she received site approval from these counties. Both counties are in the central region of North

Carolina and serve a diverse population of students; one district has over 80 schools in its system and one has eight.

To recruit these three pre-service special education teachers, the researcher completed a number of steps. First, the researcher contacted three professors who taught pre-service special education teachers in a seminar class who were enrolled in a student teaching placement at an Institution of Higher Education (hereafter referred to as Institution 1). The professors informed the researcher that there were three pre-service special education teachers that fit the participant and setting description previously mentioned.

Next, because there were only three pre-service special education teachers to recruit and the researcher was looking for three to five, she reached out to a professor at Institution 1 who taught pre-service general education teachers in a seminar class. This professor informed the researcher there were 18 pre-service general education teachers to recruit during a seminar class. This professor asked the researcher to invite two of the three pre-service special education teachers to the seminar class (i.e., recruitment site 1). The researcher emailed two pre-service special education teachers and invited them to the seminar class. The researcher emailed the third pre-service special education teacher and they mutually agreed to meet at neutral location (i.e., recruitment site 2).

Next, the researcher asked a neutral party (graduate student) to accompany her to the two recruitment sites. The researcher and graduate student visited recruitment site 1 on a Monday and recruitment site 2 on a Friday. At both recruitment sites, following IRB informed consent protocol, the researcher asked the graduate student to read the verbal

recruitment script approved by Institution 1's IRB (see Appendix B) to recruit pre-service special and general education teacher participants. At recruitment site 1, two pre-service special education teachers verbally agreed to participate in this research study, but they wanted to wait to sign consent until they spoke with their cooperating teachers. And one pre-service general education teacher signed an IRB approved consent form to participate in this research study. At recruitment site 2, the one pre-service special education teacher said she would talk with her cooperating teacher over the weekend and communicate with the researcher on the following Monday.

Next, the pre-service special education teacher from recruitment site 2 contacted the researcher and said she was unable to participate in the research study because she thought it would be too hectic for her at that time. The researcher followed up with this pre-service special education teacher to clarify any time management and schedule issues, but the pre-service special education teacher communicated, again, that participating in this study would not be a good fit for her due to her hectic schedule.

Then, one pre-service special education teacher from recruitment site 1 asked the researcher to meet with her and her cooperating teacher to talk about the study. The researcher met with the pre-service special education teacher and her cooperating teacher and the pre-service special education teacher signed consent. The researcher gave the pre-service special education teacher and her cooperating teacher copies of the parental assent and student consent forms (see Appendix C) and cover letter (see Appendix D) to send home with students the next day. The next day, this cooperating teacher contacted the researcher and said she spoke with her principal and said the principal does not approve

this study with the students in her classroom. The researcher emailed the principal, briefly explained the purpose of the study, stated that one pre-service teacher—who was student teaching at that school—provided consent to participate in the study, attached the site approval form, and asked to meet briefly to speak about the study. The principal responded to the researcher via email and stated that she was not comfortable with the research including students with disabilities at her school because the school has one of the largest populations of students with disabilities in the school system. The principal also stated that she was very familiar with most of the parents of her students and she did not feel the parents of students with disabilities would be receptive of the research study.

Meanwhile, the researcher followed up via email with the second pre-service special education teacher from recruitment site 1 and did not get a response. The next day the researcher saw the pre-service special education teacher at a school and followed-up in person about her participation in the research study. The pre-service special education teacher said she would email the research that day about her participation. The pre-service special education teacher did not follow-up. The researcher sent her a second email, but the pre-service special education teacher never responded.

Next, since one pre-service general education teacher (from recruitment site 1) signed consent, the researcher went to the school she was completing her clinical placement at and met with the pre-service general education teacher and her cooperating teacher. The researcher provided copies of the parental assent forms and cover letter to send home with students the next day. The cooperating teacher asked the researcher if all forms could be translated into Spanish because 60% of her students' parents spoke

Spanish. The researcher had a translator translate the forms into Spanish (see Appendices C and D). Then, after the researcher received IRB approval for the Spanish version of the forms, the researcher sent them to the pre-service general education teacher and cooperating teacher and they sent the forms home with the students since the pre-service general education teacher and her cooperating teacher served as the main contacts between school and home. Several parents provided assent for their children. Of these, there was one student with an identified disability. A neutral party (e.g., general education teacher) read the student verbal consent script to the student whose parent provided assent (see Appendix E).

At this point in the researcher's recruitment efforts only one pre-service general education teacher and one of her students with a disability provided consent to participate in this research study. Due to the researcher's inability to recruit the acceptable number of participants (i.e., three to five) from Institution 1, the researcher had to move recruitment efforts outside her anticipated setting. So, the researcher and her advisor contacted a professor from a small college in the southeastern part of the country (hereafter referred to as Institution 2). The researcher and her advisor asked the professor to recruit pre-service special education teachers (who were participating in a clinical placement (from the professor's seminar class. The professor agreed to facilitate the researcher's recruitment of pre-service special education teachers and obtained IRB approval from Institute 2 (See Appendix F). The professor informed the researcher there were four pre-service special education teachers the researcher could recruit.

Then, the researcher, via Skype on a Wednesday evening, met with the professor and four pre-service special education teachers to describe the research study. The professor provided the pre-service special education teachers with the consent forms and all four provided consent. The researcher provided the four pre-service special education teacher participants with her email and phone number and requested each of them email her with their contact information and class schedules. The researcher explained to the participants that time was of the essence and since this study would take 5-7 weeks, it was urgent they started as soon as parents provided assent and students provided consent. All participants were informed that the research study could possibly begin by the end of that week.

Next, after one week of the researcher not receiving any emails, phone calls, or text messages from any of the pre-service special education teachers from Institute 2, she contacted the professor for the email addresses of the pre-service special education teacher participants. Upon obtaining these email addresses, the researcher emailed and requested contact information and schedule information from all four pre-service special education teacher participants from Institution 2 and carbon copied the professor to keep her in the communication loop. Again, no pre-service special education teachers responded to the researcher's email. A few days later one pre-service special education teacher emailed the researcher and said she could do some small group lessons the following week and that her cooperating teacher had some questions about forms. Although one pre-service special education was ready to potentially begin, the researcher

needed all four participants to begin simultaneously since this was a single subject design across participants.

So, the researcher contacted all four participants for the third time and requested contact information and schedule information. Again, time was of the essence because the pre-service teachers were nearing the end of their clinical placement and K-12 students nearing the end of their school year. No pre-service special education teacher participants responded to the researcher's email. At this point in recruitment, the pre-service special education teacher participants had two weeks left in the clinical placement. Thus, there was not enough time left in the participants' clinical placement for them to participate in the study. The researcher emailed the pre-service special education teacher participants and thanked them for their eagerness to participate and wished them luck as they finished up their clinical placement and semester. Later on, the professor from Institution 2 apologized to the researcher's advisor and said she should have taken more of a leadership role in getting participants started with this dissertation study.

## **Materials**

The materials needed to deliver the *eCoaching* intervention included two components (a) online SRL training modules and (b) *eCoaching* equipment. The online SRL training module can be found at <http://onlinesrltrainingmodule.wikispaces.com/> and module excerpts are provided in Appendix G. As noted previously, the content included in the online SRL training module adheres to Mayer's (2012) 12 design principles for

multimedia learning. There was a space provided in the online SRL training module for the pre-service general education teacher to indicate she completed the training.

The pre-service general education teacher participant and the researcher used an online platform for *eCoaching* developed and tested by Rock and her colleagues (see Rock et al., 2009, 2012, 2014). The *eCoaching* materials consisted of (a) a Swivl, (b) iPad, (c) Skype, (d) Bluetooth handsfree earpiece, and (e) Call Recorder for Skype (Ecamm, network, LLC, 2007). Prior to collecting data, a Swivl was placed in a corner of the pre-service general education teacher's classroom. Skype was downloaded to her iPad, which was Bluetooth compatible.

A self-monitoring cue card, modeled after Rafferty's (2012) self-monitoring card, was provided as an example to the pre-service general education teacher (see Appendix H). The pre-service special education teacher adapted the self-monitoring cue cards and had the student participant draw a smiley face and frown face on a piece of paper at the beginning of each lesson.

### **Independent Variable**

In this study, there was one independent variable that, as Horner et al. (2005) stated, was "actively, rather than passively, manipulated" (p.167). The independent variable was an intervention package: SRL online module training + *eCoaching*. The researcher provided the pre-service general education teacher with a link to the online SRL training module which included SRL content (i.e., definition, background, rationale for implementing in teaching practices) and basic knowledge on four strategies known to help support SRL: self-instruction, self-monitoring, goal-setting, and self-reinforcement



(e.g., Zimmerman & Moylan, 2009). The researcher used the previously created PowerPoint provided in the pilot study (see Appendix A) and designed the online SRL training module using Mayer's (2012) 12 researched-based principles for designing multimedia instructions and features from effective pre-service teacher trainings (e.g., how to promote high-SRL environments) to provide the pre-service general education teacher participant with information on how she could provide explicit and implicit SRL instruction during reading instruction. For example, the pre-service general education teacher learned how to explicitly teach her student to self-record his use of self-instruction. For this study, the researcher and pre-service general education teacher chose reading instruction because it was a subject area the pre-service teacher had been teaching and the student participant was in the classroom during that instructional time.

The *e*Coaching of self-regulated learning was defined as the feedback an online coach provides specifically as it supported the pre-service general education teacher's use of self-regulation strategies during instruction via bug-in-ear technology (i.e., Bluetooth and Skype). The *e*Coach's feedback, for the purpose of this study, was the provision of (a) encouraging, (b) instructing/correcting, and/or (c) questioning comments focused on implicit and explicit SRL instruction. All independent variable definitions are provided in the SRL Coaching Codebook (see Appendix I).

### **Dependent Variables**

In single-subject research dependent variables are typically observable behaviors and selected for their social significance (Horner et al., 2005). As stated in Chapter II, students' use of SRL is correlated with higher academic achievement (e.g., Chung, 2000;

Paris & Paris, 2001; Zimmerman, 1990; Zimmerman & Bandura, 1994; Zimmerman & Martinez-Pons, 1988; Pintrich, 1999). Thus, one dependent variable is the student participant's use of SRL strategies. In particular, self-instruction, self-monitoring, goal-setting, and self-reinforcement were four strategies chosen due to prior evidence that these strategies positively effect students with disabilities SRL and academic achievement (e.g., Schunk & Cox, 1986; Harris et al., 2012). The researcher chose one strategy from each phase of the SRL cyclical process to make a comprehensive SRL strategy instruction intervention. Since self-instruction and self-monitoring can be difficult to observe (e.g., a student may think of self-statement and not speak it), the strategy of self-recording was chosen as a means to measure the use of self-instruction and self-monitoring. Since there is evidence that a combination of SRL strategies are better than one at improving student's SRL, for this study the SRL strategies were changed to self-monitoring of self-instruction, goal setting, and self-reinforcement.

A second dependent variable is student engagement during the observed content area lesson (e.g., reading, writing, math). Since self-regulatory behaviors (i.e., self-instruction) can be difficult to observe and measure, student engagement was measured so the researcher could provide additional data to show the effectiveness of *eCoaching* on student outcomes. Student engagement for the purposes of this study was defined as student's behavioral participation in the observed lesson (Fredricks et al., 2004). See the Codebook (Appendix I) for the full definition, example, and non-example.

A third dependent variable was pre-service general education teacher's SRL strategy instruction (i.e., explicit and implicit instruction). As stated in Chapter II, the

researchers who provided the most effective teacher SRL training found pre-service training programs promoted SRL in the classroom through explicit and implicit SRL instruction (Michalsky & Schechter, 2013). Explicit and implicit SRL instruction was operationally defined for the purposes of this study (see Codebook in Appendix I) and thus can be observed and measured.

A fourth dependent variable was pre-service general education teacher's self-reflection. As stated in previous *eCoaching* research, teacher participants noted that *eCoaching* triggered a cycle of self-reflection (see Rock et al., 2009, 2012, 2014). In this study, pre-service general education teacher's self-reflection is defined using Zimmerman and Campillo's (2003) subprocesses of self-reflection (i.e., self-judgment and self-reaction) and the classes under these subprocesses (i.e., self-evaluation, causal-attribution, self-satisfaction, adaptive). Definitions of these terms are found in the SRL Coaching Codebook (see Appendix I).

### **Measurement**

Researchers have measured students' SRL using a variety of assessments which Boekaerts, & Corno (2005) reported range from self-reports to observations of overt behavior to keeping diaries. For the purposes of this SSRD, observation of one pre-service general education teacher's and her third grade student participant's overt behavior was chosen because it allowed for measurement of behavior from the same individuals across phases (Horner et al., 2005). This was the first study designed to provide evidence that *eCoaching* affects a pre-service general education teacher's SRL instruction and her student with a disability's SRL strategy use; therefore, measurements

for the dependent variables have not previously been developed. Thus, the researcher created observation sheets using, Cooper et al.'s (2007) guidelines for measuring behavior and Gast's (2010) general guidelines for measuring behavior during applied research. Table 1 provides a research model overview, organized by research question.

*Table 1. Research Model Matrix*

<b>Research Question(s)</b>	<b>Dependent Variable</b>	<b>Measurement</b>	<b>Analysis</b>
RQ 1 How does a pre-service general education teacher's participation in online SRL training + eCoaching impact her use of those strategies, during classroom instruction?	Teacher SRL instruction	Partial time sampling: Frequency of teacher's explicit and implicit SRL instruction	Visual analysis Trend analysis PND
RQ 2 How does a pre-service general education teacher's SRL strategy use during instruction impact her student's use of those strategies?	Student SRL strategy use	Frequency of student's self-instruction and percentage of student's self-recording	Visual analysis Trend analysis PND
RQ 3 How does a pre-service general education teacher's SRL strategy use during instruction impact her student's engagement in learning?	Student engagement	Partial time sampling: Percentage of student's behavioral engagement	Visual analysis Trend analysis PND
RQ 4 How does a pre-service general education teacher's participation in online SRL training + eCoaching impact her own self-reflection?	Teacher self-reflection	Written self-reflection answers to self-reflection prompts	Thematic analysis

As noted previously, in SSRD, several measurements must be conducted to meet acceptable or exemplary quality indicator criteria developed by Horner et al. (2005): dependent and independent variables (including fidelity of the independent variable) and social validity. These measurements are described in the following sub-sections.

### **Student Measures**

One student with a disability's use of SRL strategies as a response to teacher SRL instruction during each 20-minute lesson was measured. The researcher measured the dependent variable by counting the frequency of the student's self-instruction to find the quantity of student's use of self-instruction or no use of self-instruction (Cooper et al., 2007). This method was chosen because students' self-instruction may not always be observable by a trained observer and thus, the students' self-monitoring card was used as a means to measure students' use of self-instruction and self-monitoring. It was also used to record the student's goal and self-reinforcement. Similar to Rafferty's (2012) self-monitoring card used by students to self-record their use of a reading strategy, student participant's in this study self-recorded their occurrences and non-occurrences of self-instruction using a self-monitoring sheet (described in the materials section). The pre-service general education teacher participant collected the student participant's self-monitoring sheet at the end of each lesson and sent it to the researcher. Then, the researcher calculated the frequency of the student participant's self-instruction (i.e., divided the total number of occurrences by non occurrences) using a data collection chart for Research Question 2 (RQ 2) (see Appendix J). All third grade students in the pre-service general education teacher's classroom were provided an opportunity to self-

monitor, yet, data was only collected for the one student participant included in this dissertation study.

The researcher also sought to measure the third grade student participant's engagement in the lesson as a means to demonstrate the effects of *eCoaching* with SRL feedback on a student with a disability. Similar to Rock and colleagues' (i.e., Rock et al., 2009, 2012, 2014) studies with *eCoaching*, student engagement was measured to determine if changes in teacher instruction were complemented by changes in student behavior. The researcher used interval time sampling to measure the overall percentage of engagement for all students with disabilities who participated in the lesson (Cooper et al., 2007) using a data collection chart for Research Question 3 (RQ 3) (see Appendix K).

### **Pre-Service General Education Teacher Measure**

The occurrence of the pre-service general education teacher participant's use of SRL instruction was another dependent variable the researcher measured. Copper et al. (2007) identified several ways to record every instance a behavior occurred at a certain point in time, one of which is time sampling; for this study the researcher selected one form: partial-interval time sampling. Partial time sampling involves dividing the observation period into intervals and recording the presence or absence of a behavior at any time during the interval (Cooper et al., 2007). Although partial-interval time sampling can overestimate the duration of behavior and underestimate the occurrences of high frequency behavior, it is possible to measure multiple behaviors concurrently using this method. Since teacher and student behaviors were being measured, the researcher chose the partial interval time sampling method. Also, Cooper et al. posited intervals less

than two minutes, however, are comparable to continuous duration measures. Therefore, the researcher decided on two-minute intervals during the observed 20 minutes of teacher instruction and student learning. The researcher and a trained observer used two-minute intervals during the pilot study, as well, and found data collection doable. The researcher used partial interval time sampling data collection chart to capture these data using a data collection chart for Research Question 1 (RQ 1) (see Appendix K).

The pre-service general education teacher's self-reflection was also measured because it was a component of the SRL *eCoaching* model and *eCoaching* researchers have reported *eCoaching* prompts a cycle of reflection for teachers (e.g., Rock et al., 2009, 2012, 2014). After each *eCoaching* session the researcher asked the pre-service general education teacher three reflection questions guided by Roffy-Barrenstein and Malthouse's (2013) reflective questioning (see Appendix K). The pre-service general education teacher participant wrote her responses and sent them to the researcher via text message after each observational period and before the beginning of the next observational period. The pre-service general education teacher participant reflected on her reading and SRL instruction she provided to all students, including, but not limited to, the student participant.

### **Social Validity Measure**

Referring back to Paris and Paris (2001), they called for self-regulation researchers to investigate practical interventions using methods teachers can replicate in their classrooms and strategies students can integrate into their learning. However, concerns, such as the practicality of research procedures, have been raised in regards to

researchers who use single-subject research design because of the focus on interventions. Therefore, the social validity, or practicality of the research procedures and findings must be measured and established (Horner et al., 2005). The researcher sought to measure the magnitude of the social importance of online SRL training + *e*Coaching, the pre-service general education teacher participant's SRL instructional practices, and the student participant's use of SRL strategies. Doing so met Horner et al.'s (2005) criteria for "acceptable" social validity. The social validity measures for the pre-service general education teacher and her third grade student participant are in Appendix L.

The social validity questionnaire for the pre-service general education teacher participant was adapted from the IRIS Center's guidelines and example of social validity in intervention research. The social validity questionnaire for the student participant was adapted from the Elementary Reading Attitude Survey (McKenna & Kear, 1990). For the pre-service general education teacher participant there were 15 questions and the student participant there were 3.

### **Fidelity Measures**

In single-subject research, fidelity of the independent variable must be measured (Horner et al., 2005). For the purposes of this research, the fidelity of the *e*Coach's SRL feedback was measured. The researcher used observational methods to measure the fidelity of the *e*Coach's feedback (i.e., instructional/correctional, encouraging, and/or correcting) on self-regulated learning, teacher's use of SRL, and student's SRL. Using the coaching fidelity checklist, a trained secondary observer used the recoded *e*Coaching sessions to collect data on feedback provided by the *e*Coach. An example of the



*e*Coaching fidelity measure is provided in the Appendix M. The trained secondary observer had previous training, coursework, and experience in qualitative analysis (Miles & Huberman, 1994).

### **Data Collection Procedures**

The researcher obtained approval from Institution 1's Internal Review Board (IRB) to conduct a pilot of this research in February 2015 (see Appendix N). In June 2015, the researcher made modifications to the pilot study (i.e., recruitment and selection; teacher and student participants) and received approval from Institution 1's IRB (see Appendix N).

As described previously, the researcher used a multiple probe design across behaviors to demonstrate experimental control of SRL *e*Coaching and evaluate internal validity. To implement a multiple probe design across behaviors the researcher followed a plan for measurement of the participant's behavior prior to the introduction of the independent variable and across three conditions: (a) baseline phase, (b) intervention phase, and (c) maintenance phase (Kratochwill, 2011). Each phase is described in the following sub-sections and summarized in Table 2.

*Table 2. Procedures*

Condition	Activities	Decision Rule
Baseline	No intervention <ul style="list-style-type: none"> <li>• The researcher observed and recorded the pre-service general education teacher and her third grade student during typically reading lessons.</li> <li>• The researcher asked the pre-service general education teacher three reflection questions.</li> </ul>	5 data points (Kratochwill et al., 2010)

	<ul style="list-style-type: none"> <li>The researcher collected data using pre-service general education teacher's SRL instruction and her student's SRL strategy use and engagement.</li> </ul>	
Intervention Behavior #1	<ul style="list-style-type: none"> <li>The pre-service general education teacher began the intervention phase of the multiple probe design across behaviors in a stair-step fashion (how and when this happened is described in the Intervention Phase section below).</li> </ul> <p>Online SRL training – no data collection</p> <ol style="list-style-type: none"> <li>The pre-service general education teacher completed an online module training in SRL (see description in Intervention phase).</li> <li>The pre-service general education teacher learned the importance of SRL, characteristics of self-regulated learners, and the definitions and terms of four effective SRL strategies (self-monitoring, self-instruction, goals setting, and self-reinforcement) for students with disabilities.</li> <li>The pre-service general education teacher learned necessary pedagogical skills (i.e., explicit and implicit SRL strategy instruction) to promote her student's use of self-monitoring, self-instruction, goals setting, and self-reinforcement during learning.</li> <li>The pre-service general education teacher had opportunities for observations of SRL (e.g., video clips).</li> <li>The pre-service general education teacher learned the importance and effectiveness of <i>eCoaching</i>, how it can be used in her classroom, and was given access to resources explaining how it used.</li> </ol> <p>SRL <i>eCoaching</i></p> <ol style="list-style-type: none"> <li>The pre-service general education teacher called the <i>eCoach</i> via Skype before reading instruction. Her Bluetooth was connected to Skype audio output.</li> <li>The pre-service general education teacher began the lesson, the <i>eCoach</i> observed lessons via Skype, and provided feedback on SRL instruction and her 3 grade student's use, via Bluetooth.</li> <li>The <i>eCoach</i> provided feedback, during instruction, specifically as it supported the teacher's use of explicit and implicit instruction of</li> </ol>	At least 5 data points or stable trend (Kratochwill et al., 2010)

the first two SRL strategies: self-monitoring and self-instruction.

4. The researcher asked the pre-service general education teacher three reflection questions.
5. The *e*Coaching session ended.
6. The researcher collected data using the pre-service general education teacher's SRL instruction and her student's SRL strategy use and engagement.

Intervention Behavior #2	<ul style="list-style-type: none"> <li>• The pre-service general education teacher continued the intervention phase of the multiple probe design across behaviors.</li> </ul> <p>Online SRL training- no data collection</p> <ul style="list-style-type: none"> <li>• The same steps followed in Intervention #1 were followed for Intervention #2.</li> <li>• The pre-service general education teacher went back to the online module and learned about goal-setting.</li> <li>• SRL <i>e</i>Coaching <ol style="list-style-type: none"> <li>1. For Behavior #2, the same steps as Behavior #1 were followed.</li> <li>2. Different, however, was how the <i>e</i>Coach provided feedback, during instruction, specifically as it supported the teacher's use of explicit and implicit instruction of the first two SRL strategies learned and practiced (i.e., self-monitoring and self-instruction) + the third strategy: goal setting.</li> </ol> </li> </ul>	At least 5 data points or stable trend (Kratochwill et al., 2010)
Intervention Behavior #3	<ul style="list-style-type: none"> <li>• The pre-service general education teacher continued the intervention phase of the multiple probe design across behaviors.</li> </ul> <p>Online SRL training- no data collection</p> <ul style="list-style-type: none"> <li>• The same steps followed in Intervention #1 and #2 were followed for Intervention #3.</li> <li>• The pre-service general education teacher went back to the online module and learned about self-reinforcement.</li> <li>• SRL <i>e</i>Coaching <ol style="list-style-type: none"> <li>1. For Behavior #3, the same steps as Behavior #1 and 2 were followed.</li> <li>2. Different, however, was how the <i>e</i>Coach provided feedback, during instruction, specifically as it supported the teacher's use of</li> </ol> </li> </ul>	At least 5 data points or stable trend (Kratochwill et al., 2010)

	explicit and implicit instruction of the first two SRL strategies learned and practiced (i.e., self-monitoring and self-instruction) + the third strategy (i.e., goal setting), + the fourth strategy (i.e., self-reinforcement).	
Maintenance	No online SRL training + <i>e</i> Coaching intervention <ul style="list-style-type: none"> <li>• The researcher observed the pre-service general education teacher and her third grade student during reading lessons (i.e., same as baseline and intervention).</li> <li>• The researcher asked the pre-service general education teacher three reflection questions.</li> <li>• The researcher collected data on the pre-service general education teacher's SRL instruction and her third grade student's SRL strategy use and engagement.</li> </ul>	At least 5 data points or stable trend (Kratochwill et al., 2010)
Generalization	No online SRL training + <i>e</i> Coaching intervention <ul style="list-style-type: none"> <li>• The researcher intended to observe pre-service general education teacher and her third grade student during typically scheduled content area lesson (i.e., <i>different</i> from baseline and intervention).</li> <li>• The researcher will ask the pre-service teacher three reflection questions.</li> </ul> The researcher intended to collect data using pre-service general education teacher's SRL instruction and her third grade student's SRL strategy use and engagement.	At least 5 data points or stable trend (Kratochwill et al., 2010)

The researcher followed Gast's (2010) guidelines for conducting a multiple probe design across behaviors and applied these to the purposes of this research study. First, the researcher recruited and selected a minimum of three behaviors that were functionally independent, yet functionally similar (i.e., self-monitoring of self-instruction, goal setting, and self-reinforcement). Second, the researcher determined a criterion-level prior to introducing the intervention to the next behavior. There are two strategies a researcher can use to establish criteria for staggering the introduction of the intervention: (a) stagger

according to a set number of days or sessions and (b) set a pre-determined criterion (e.g., when a teacher masters the use of a strategy). For this study, the researcher set the criterion level to a minimum five data points with a stable trend, as Gast (2011) recommends staggering the intervention every 5-7 days as a better test of threats to internal validity. Third, the researcher collected baseline data until the pre-service general education teacher participant reached criterion (i.e., five continuous days of data collection with stable level and trend). Fourth, the researcher introduced the intervention when the data path of at least one behavior showed acceptable stability in level and trend while maintaining other behaviors in the baseline condition. Fifth, the researcher introduced the intervention to a new behavior when the pre-service general education teacher reaches criterion (i.e., five continuous days of data collection with stable level and trend). Last, the researcher continued the data collection pattern for maintenance and generalization phases.

Additional details for each phase are delineated in the following sub-sections.

### **Baseline Phase**

In the baseline phase, the researcher repeatedly measured the pre-service general education teacher for her use of SRL instruction and her third grade student's SRL strategy use. The pre-service general education teacher participant and student participant followed standard practices for teaching and learning during a typical 20-minute teaching lesson in reading. Lessons were recorded using a secure recording device and uploaded to a secure and private database. During baseline, the researcher did not provide the pre-service general education teacher participant with online SRL training or *eCoaching*.

Data was collected daily on pre-service general education teacher participant's self-regulation strategy instruction, student participant's use of self-regulation strategies, and student engagement. Data was collected according to What Work's Clearinghouse's standards identified in Kratochwill et al. (2010), which requires data to be collected across 5 or more consecutive sessions over at least 3 days, or until data were stable, on all tiers (i.e., behaviors)—the criteria set for this study was 5 data points (i.e., five days of continuous data collection).

### **Intervention Phase**

This phase consisted of an intervention package: SRL online module training + *eCoaching*. The pre-service general education teacher participant participated in an online module training on SRL. The online module took approximately 45-minutes for the pre-service general education teacher participant to complete, within a designated time period (i.e., over the weekend). After the training, the pre-service general education teacher participant taught regularly scheduled reading lessons. As in baseline, lessons were recorded using a secure recording device and uploaded to a secure and private database. During the lesson the researcher provided *eCoaching* with in-situ feedback during the reading lesson on pre-service general education teacher participant's SRL instruction through bug-in-ear technology (i.e., Skype and Bluetooth). Feedback was categorized as instructional/correctional, encouraging, or questioning (Rock et al., 2009, 2012; Scheeler et al., 2004). Data was collected on the pre-service general education teacher participant's self-regulation strategy instruction, student participant's use of self-regulation strategies, and student engagement.

Within the intervention phase, the pre-service general education teacher was introduced to three behaviors: (a) self-monitoring and self-instruction, (b) goal-setting, and (c) self-reinforcement. Each behavior was introduced to the intervention when the pre-service general education teacher participant had completed 5 days of continuous data collection and reached a stable trend in SRL strategy instruction. Data was collected continuously during intervention until criterion was reached (i.e., 5 days of continuous data collection). When the pre-service general education teacher participant reached criterion with the first behavior, only then, was the second behavior introduced (i.e., SRL online module training in goal setting + *eCoaching*). When the pre-service general education teacher participant reached criterion with the second behavior, only then, was the third behavior introduced (i.e., SRL online module training in self-reinforcement + *eCoaching*).

### **Maintenance Phase**

The researcher conducted the maintenance phase to observe the pre-service general education teacher participant's ability to implement SRL instruction and her third grade student's use of SRL strategies when she did not receive *eCoaching*. After the pre-service general education teacher participant reached criterion (i.e., completed at least 5 continuous days of data collection in the intervention phase and had a stable trend), the pre-service general education teacher participant began the maintenance phase. Similar to baseline, the pre-service general education teacher participant taught regularly scheduled reading lessons. The researcher did not provide additional online SRL training or *eCoaching* during this phase. Lessons were recorded using a secure recording device

and uploaded to a secure and private database. The researcher collected data on the pre-service general education teacher participant's use of self-regulation strategies, her student participant's use of self-regulation strategies, and the student's engagement. During this phase the pre-service general education teacher completed the time required in her clinical placement. Therefore, only 2 data points were collected in this phase and the intended generalization phase did not occur.

**Inter-observer agreement (IOA).** A trained secondary coder was assigned to code 25% of the recorded sessions across a condition (e.g., baseline, intervention), just above the acceptable percentage (i.e., 20%) to meet evidence standards (Kratochwill et al., 2010). The secondary coder had training, coursework, and experience in coding (Miles & Huberman, 1994). The secondary coder was trained to establish, monitor, and maintain satisfactory level (i.e., 80%) of inter-observer agreement on all data collected and coded by the primary observer (i.e., the researcher). In terms of training, both observers met and reviewed all definitions provided in the codebook. Then, both observers watched a recorded lesson from the study of which was not used for data collection purposes. The video was paused during times of disagreement to assess and evaluate the issue. Agreement percentages were determined based on a comparison of the two coders' records and calculated by dividing the total number of agreements by the total number of agreements plus disagreements, multiplied by 100 (Cooper et al., 2007). Minimum acceptable values of inter-observer agreement can range from 0.80 to 0.90 (on average) if measured by percentage agreement (Kratochwill et al., 2010).



## **Data Analysis**

In single-subject research, quantitative data (i.e., effect size) and visual analysis provide a means for the researcher to analyze behavior change as a result of the independent variables, and thus determine if there is a causal relation between the independent and dependent variables (Kratochwill et al., 2010; Scruggs, Mastropieri, & Casto, 2001). In the following sub-sections, the researcher provides details on how the she used effect size and visual analysis to determine the effects of *e*Coaching on the pre-service general education teacher's SRL instruction and student's SRL strategy use.

### **Visual Analysis**

A researcher can approach analysis of single-subject data through “systematic visual comparison” of a participant's response to the intervention within and across phases of a study (Parsonson & Baer, 1978, in Horner et al., p. 169). In order to demonstrate the effects of the intervention, the researcher followed Kratochwill et al.'s (2010) criteria for evidence of a causal relation between the independent and dependent variables through visual analysis. In brief, the researcher reported (a) consistency of level, trend, and variability within each phase, (c) the immediacy of the effect, the proportion of overlap, and the consistency of the data across phases, and compared observed and projected patterns of the dependent variable, and (c) examined external factors (Kratochwill et al., 2010). Horner et al. (2005) defined level, trend, and variability: level is the average (i.e., mean) occurrence of the dependent variable (i.e., behavior) during each phase of the study; trend “the rate of increase or decrease of the best-fit straight line for the dependent variable” (p. 171) within each phase; variability is

“the degree to which performance fluctuates around a mean or slope during a phase” (p.171). In order for the researcher to conduct visual analysis of data, the data must be graphically displayed (Spriggs & Gast, 2010).

In this study, the researcher graphically displayed data (i.e., mean, range, and standard deviation) to communicate the effects of online SRL training + *e*Coaching on the pre-service general education teacher participant’s SRL instruction and student’s SRL strategy use and engagement. Spriggs and Gast (in Gast, 2010) stated graphic displays serve two basic purposes: (a) to organize data during the data-collection process, (b) to summarize and describe quantitative data, thus allowing the researcher to analyze the causal relationship (if any) between the independent and dependent variables. Spriggs and Gast (in Gast, 2010) posited when a researcher uses graphs in single-subject research design, he or she can independently analyze the effects of the study—this independent analysis is a strength single-subject research design—and communicates to the reader: “(a) sequence of experimental conditions and phases; (b) time spent in each condition; (c) independent and dependent variables; (d) experimental design; and (e) relations between variables” (p. 167). The researcher used Microsoft Excel® to graphically display the mean and the range of dependent variables. After all data were collected, the researcher followed Gast and Sprigg’s (in Gast, 2010) general guidelines of visual analysis.

### **Effect Size**

Effect size of non-overlapping data (PND) between baseline and treatment phases is used in single-subject research to demonstrate reliable effects of intervention (Scruggs et al., 2001). This method of demonstrating effect uses plotted data points over time and

is the most widely published analysis for effect size (Scruggs & Mastropieri, 1998).

When non-overlapping data can be replicated across intervention phases, a researcher can argue for the effects of the intervention (Kazdin, 2011). Effects are typically considered reliable when performance during an intervention phase does not overlap with performance during baseline phase (Kazdin, 2011). PND is interpreted “as the percentage of Phase B data exceeding the single highest Phase A data point” (Parker, Vannest, & Davis, 2011, p. 310). To calculate, the researcher will identify the highest baseline points, count the number of intervention points that exceed the highest baseline point (non-overlapping data), then calculate the proportion of non-overlapping data to total number of interval points (Gast and Spriggs in Gast, 2011). PND can range from 0% to 100%, however, Scruggs & Mastropieri (1998) posited above 70% is regarded as an effective intervention.

### **Thematic Analysis**

The researcher developed codes (see Appendix H) a priori as a qualitative method to assign meaning or value (Miles & Huberman, 1994) to pre-service general education teacher participant’s written self-reflection statements after each lesson. The researcher used Zimmerman’s (2011) subprocesses of self-reflection and defined these terms using relevant literature on self-regulation and teachers’ self-reflection (e.g., Capa-Aydin, Sungur, & Uzuntiryaki, 2009; Zimmerman, 2002). The researcher used these codes to thematically analyze the pre-service general education teacher’s reflection after SRL instruction then converted to frequency counts according to themes.

## **Summary**

The purpose of this study was to investigate the effects of online SRL training + *e*Coaching on a pre-service general education teacher's SRL instruction and her third grade student's outcomes (i.e., SRL strategy use and engagement). The researcher employed a single-subject multiple-baseline design across behaviors to determine the effects of the intervention (i.e., SRL *e*Coaching) on the dependent variables (i.e., student outcomes). Using evidence-based standards in SSRD (i.e., Horner et al., 2005; Kratochwill et al., 2010), the researcher collected, graphed, and analyzed data to determine the effects of this intervention.

## CHAPTER IV

### RESULTS

The purpose of this study was to investigate the efficacy of *eCoaching* provided to a pre-service general education teacher as she provided self-regulated learning instruction in a general education classroom with a student with a disability. In this chapter, the researcher describes the two types of analysis conducted on the collected data and presents the results of those analyses organized by research question, the social validity of the online SRL training + *eCoaching*, reliability of the results, and fidelity of the *eCoaching* feedback.

#### **Participant Recruitment and Selection**

The researcher conducted purposeful and convenience sampling to recruit and select participants that suited the purpose of this study (Gall et al., 2007). The researcher conveniently recruited pre-service general and special education teacher participants from two higher education institutes in the southeastern region of the United States. The recruited individuals were participating in a teacher education preparation program and enrolled in a clinical placement in two counties the researcher received research study approval.

Again, as described in Chapter III, the researcher put forth stringent and systematic recruitment efforts in one institution and even extended to another institution

to recruit participants. Of the 21 pre-service general and special education teachers at Institute 1 and four from Institute 2 whom were invited, six agreed and signed consent.

However, only one pre-service general education teacher from Institute 1 had enough time to participate in this research study—again, for reasons described in Chapter III. This one pre-service general education teacher participant was a 22-year old female, enrolled in a teacher preparation program, majored in general education, and completed an assigned clinical experience in a third grade classroom in a public school in North Carolina. One student participant was recruited and selected to be a student participant because he was enrolled in a North Carolina public school, had a high incidence-disability (i.e., hearing and speech impaired and specific learning disability in reading), and taught by the pre-service general education teacher participant.

Hereafter the teacher and student participants will be referred to as “pre-service general education teacher participant” and “student participant”. The pre-service general education teacher participant and student participant were informed of their rights as research participants and that participation was completely voluntary.

### **Setting**

Based on the purposive convenience sample methodology used, the setting for the study included one elementary school in the state of North Carolina serving 655 students in grades K-5. School ethnicity data included a population consisting of 70% Hispanic, 25% Black or African American, 3% White, and 2% Multi-Racial. The pre-service teacher participant’s third grade classroom provided the specific setting for this investigation.

The pre-service teacher completed the online SRL module training via a wikispace (see URL below) in a setting of her choosing and convenience. The *eCoaching* took place in the pre-service general education teacher's third grade classroom, during whole and small group reading instruction. There were 18 students in the classroom during reading instruction, including the student participant with a disability; 60% of these students had parents whose only language was Spanish. Data was only collected on the one pre-service general education teacher participant and one student participant.

### **Analyses**

As described in Chapter III, the researcher conducted visual analysis to assess the relationship between the online SRL module training + *eCoaching* on the pre-service teacher participant's use of her combined explicit and implicit SRL strategy instruction and the student's use of the SRL strategies. The researcher intended to measure the pre-service general education teacher's separate use of explicit and implicit SRL strategy instruction. However, for ease of measurement and inter-observer agreement, the researcher made modifications during the implementation of the study and measured the combined use of the pre-service general education teacher's explicit and implicit SRL strategy; hereafter referred to as "pre-service general education teacher's explicit and implicit SRL strategy instruction."

The researcher also conducted a thematic analysis to analyze how the pre-service general education teacher reflected after she taught lessons with and without the implementation of the online SRL module + *eCoaching*. In the following sections, the researcher describes the results of the visual and thematic analyses.

## **Visual Analysis**

The first form of analysis the researcher conducted for this study was a visual analysis of the data collected. As described in Chapter III, according to Kratochwill et al. (2010), researchers must examine six features to assess the effects on an intervention within single-subject designs: level, trend, variability, immediacy of effect, overlap, and consistency of data patterns across similar phases. To assess these six features and determine effect, the researcher followed Kratochwill et al.'s (2010) four criteria, described as follows. First, the researcher assessed the baseline for a predictable pattern of data. Next, if this baseline pattern was documented, the researcher then visually analyzed the data within each phase to assess predictable patterns of responding. Then, the researcher visually analyzed adjacent conditions to assess whether manipulation of the independent variable was associated with an effect. Last, the researcher compared the visual analyses of within and between conditions to assess whether there are at least three demonstrations of an effect at different points in time, the minimum number of data points—according to Kratochwill et al.—a researcher needs to determine if the independent variable had an effect.

In this study, the researcher assessed changes in the pre-service teacher participant's instruction in four SRL strategies (self-monitoring, self-instruction, goal-setting, and self-reinforcement) within and between conditions following Kratochwill et al.'s (2010) six features. The pre-service general education teacher participant learned and implemented self-monitoring and self-instruction simultaneously. Therefore, the researcher did not measure her ability to use these separately, but measured her combined



use of these two strategies. For the student participant, the researcher assessed changes in his self-monitoring of three SRL strategies: self-instruction, goal setting, and self-reinforcement within and between conditions following Kratochwill et al.'s (2010) six features. To assess the level, trend, variability, and consistency of data patterns, the researcher (a) produced graphical displays of the teacher's and student participant's instruction in and use of SRL strategies, respectively, and (b) used Lane and Gast's (2013) step-by-step guide for conducting a visual analysis of the graphed data. These graphic displays are presented in Figures 4 and 5.

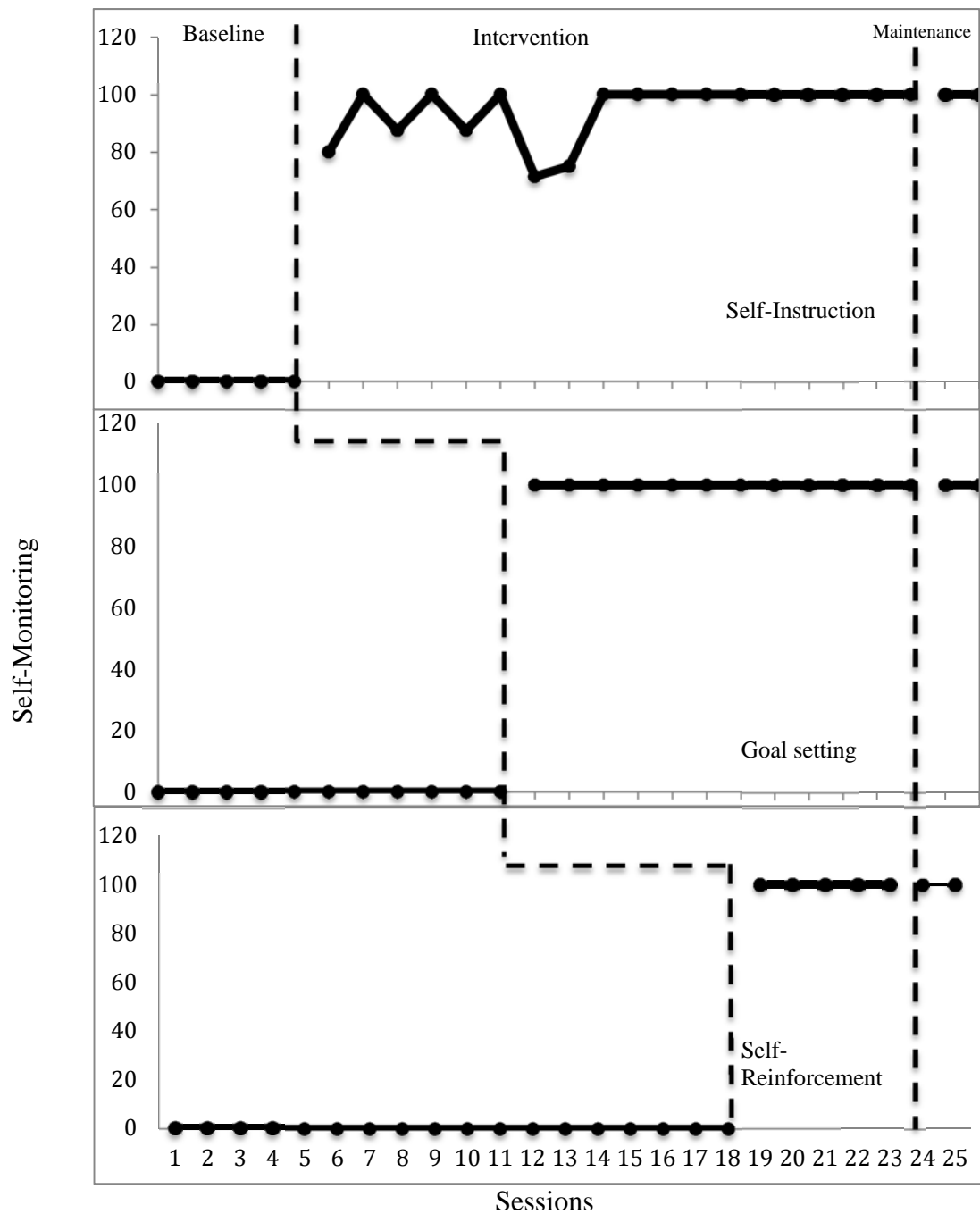


Figure 4. Student Participant SRL Strategy Use Across Behaviors.

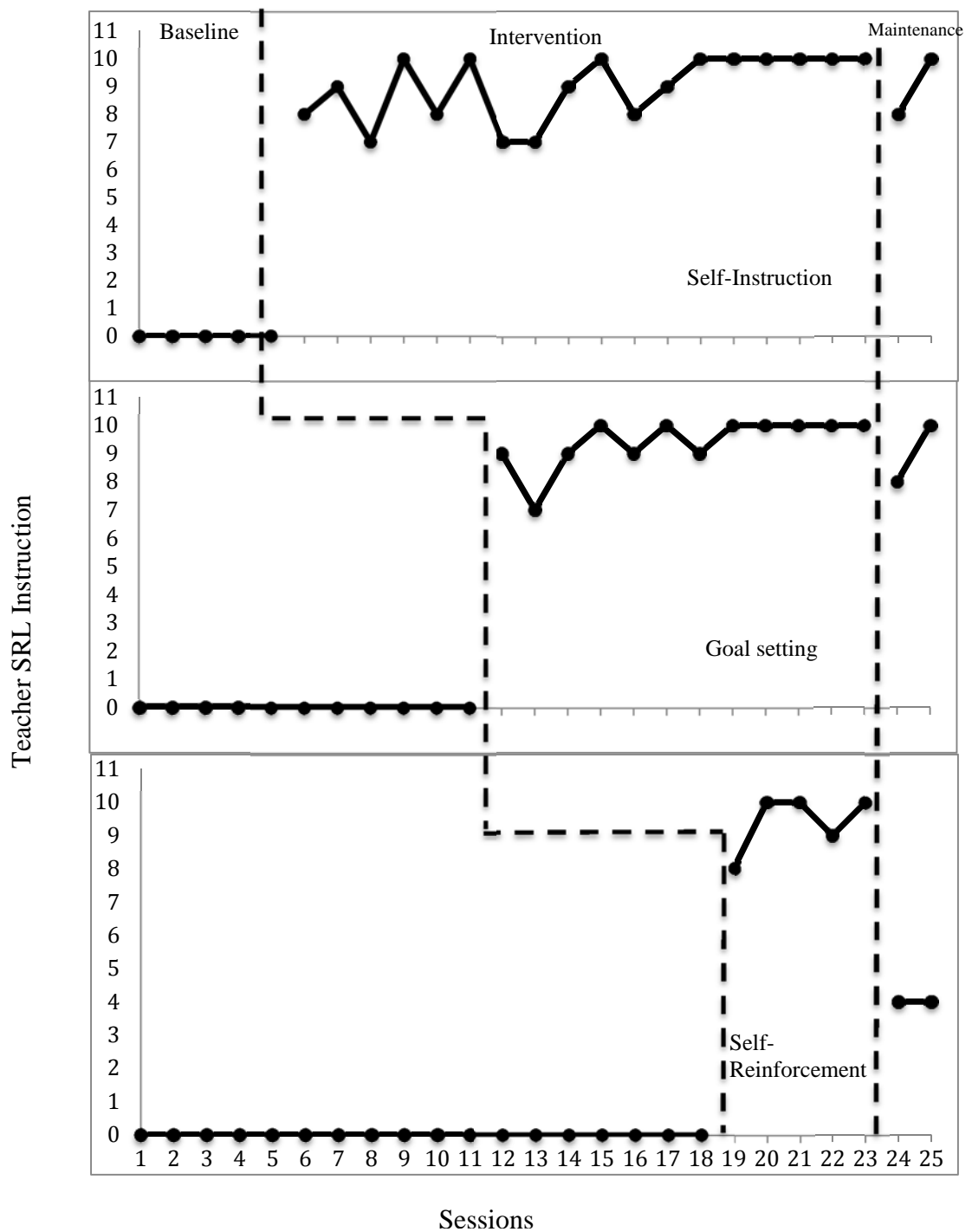


Figure 5. Pre-Service General Education Teacher's Explicit and Implicit SRL Instruction Use Across Behaviors.

To visually analyze the graphed data of within-condition effects, the researcher completed three steps. First, the researcher inspected the level, or amount of variability in the data-point values, by calculating the median level and stability envelope and determined the number of data points that fell on or within the median line. Next, the researcher analyzed the degree of level change within the same condition by calculating the relative level changes within each condition because, as Spriggs and Gast (2010) have noted, it is representative of the amount of change within the same condition. The researcher used Gast's (2010) recommendations and labeled the level stable if 80% of the data points fell on or within the stability envelope. Second, the researcher inspected the trend direction by inserting a trend line and determining if the data path across time was accelerating, decelerating, or zero celerating. Third, the researcher analyzed trend stability within each condition. To calculate trend stability, the researcher inserted the trend line for each condition and, using the same stability envelope from the level analysis, determined the number of data points that fell on or within the condition trend line and stability envelope. The researcher used Gast's (2010) recommendations and labeled the trend stable if 80% of the data points fell on or within the stability envelope.

To visually analyze the graphed data of between-condition effects, the researcher inspected level and trend changes between adjacent conditions (Lane & Gast, 2013) and followed Scruggs and Mastropieri's (1998) procedures previously described in Chapter III to calculate the percentage of non-overlapping data (PND). To visually inspect level and trend changes between adjacent conditions, the researcher performed the same analysis based on observation and calculations during the within-condition analysis but used the

data from adjacent conditions to directly compare. To calculate PND, the researcher identified the highest baseline points, counted the number of intervention points that exceeded the highest baseline point, then calculated the proportion of non-overlapping data to the total number of interval points (Gast, 2011). According to Scruggs and Mastropieri (1998), although PND can range from 0% to 100%, scores of intervention observations above 90% are regarded very effective, 70%-90% as effective, 50%-70% as questionable (p. 224), and under 50% as ineffective. The means, standard deviations, and PND for each dependent variable are presented in Tables 3 and 4.

*Table 3. Means, Standard Deviations, and Percentages of Nonoverlapping Data for Student Participant Across Phases*

Participant/Phase	Self-Monitoring & Self-Instruction		Goal-Setting		Self-Reinforcement	
	M	SD	M	SD	M	SD
Baseline	0.00	0.00	0.00	0.00	0.00	0.00
Intervention	94.52%	9.75	100%	0.00	100%	0.00
PND	100%		100%		100%	

*Table 4. Means, Standard Deviations, and Percentages of Nonoverlapping Data for Pre-service General Education Teacher Participant Across Phases*

	Self-Monitoring & Self- Instruction		Goal-Setting		Self-Reinforcement	
Participant/Phase	M	SD	M	SD	M	SD
Baseline	0.00	0.00	0.00	0.00	0.00	0.00
Intervention	8.57	1.27	9.41	0.90	9.4	0.89
PND	100%		100%		100%	

### **Thematic Analysis**

According to Brantlinger, Jiminez, Klingner, Pugach, and Richardson (2005), researchers conducting qualitative research in special education must—to produce valid conclusions—systematically code results in a meaningful way, include a rationale for what is and is not included, document the methods used to establish trustworthiness and credibility, and support conclusions with sufficient quotations from the participants’ written reflections while making connections with related research. For the purposes of this research study, to examine the effects of the online SRL training module + *eCoaching* on the pre-service teacher’s self-reflection, the researcher developed a priori codes (Miles & Huberman, 1994), coded the pre-service teacher’s written reflection statements, and then conducted magnitude coding (Saldaña, 2013) to determine the amount of self-judgment and self-reaction comments the pre-service general education teacher made.

According to Zimmerman (2002), an individual can engage in self-reflection in two ways: using self-judgment and self-reaction. For the purposes of this study, self-

judgment was defined as when the teacher responded to her teaching with comments that were comparisons of her self-observed performance (e.g., systematically monitoring own performance, recording data, comparing prior performance, previous established goals, or absolute standard performance) or beliefs about the cause her errors or successes in teaching SRL (Capa-Aydin, Sungur, & Uzuntiryaki, 2009; Zimmerman, 2002). An example of a self-judgment comment could have been, "I prompted students to use more SRL strategies in this lesson than in previous lessons before the online SRL training module and/or *eCoaching* started."

Also for the purposes of this study, self-reaction was defined as the pre-service general education teacher's affective written responses following her reading lesson. When the pre-service general education teacher responded to how she engaged in teaching SRL (e.g., goal setting; rehearsing or practicing explicit and implicit SRL strategy instruction; asking for help) and/or self-administering praise or criticism (e.g., written statements that included feelings of positive use of SRL strategies). Self-reaction comments also included the pre-service general education teacher's adaptive or help-seeking comment, such as her willingness to seek help from others to resolve problems encountered as she taught SRL strategies. Also, self-reaction comments included the pre-service general education teacher's readiness to make personal adjustments (e.g., her willingness to adapt strategies, procedures, or materials to demands of teaching SRL strategies; Zimmerman & Labuhn, 2012; Zimmerman, 2002).

Following Miles and Huberman's (1994) procedures for thematic analysis and using these pre-established definitions for self-judgment and self-reaction comments, the

researcher, adopted those two terms as a priori codes to code their frequency within the teacher's written comments (Saldaña, 2013) across all phases of the experiment and assigned codes to the pre-service general education teacher's written statements that were directed toward improving the educational or behavioral outcomes of the student participant.

### **Pre-Service Teacher's Implemented SRL Strategies**

To answer the first research question, "How does a pre-service general education teacher's SRL strategy use during instruction impact her use of those strategies?" the researcher used interval sampling measures to measure the frequency of the pre-service teacher's explicit and implicit SRL instruction across three behaviors: (a) self-instruction and self-monitoring, (b) goal-setting, and (c) self-reinforcement.

The researcher concluded, after viewing the visual analysis of the data within and across conditions shown in Figure 5, there was a functional relationship between the pre-service teacher's receiving SRL training + *eCoaching* and her ability to explicitly and implicitly teach the four target SRL strategies. The mean percentage of the student participant's use of SRL strategies across all behaviors during baseline was 0%.

Comparison of the frequency of SRL strategy instruction used in the baseline phase to that of the percentage after the pre-service general education teacher began her online SRL training + *eCoaching* showed a strong improvement in the teacher's use of SRL instruction across all behaviors. Overall, the frequency of the pre-service general education teacher participant's use of the four SRL strategies improved from 0.00 to 9.13,



ranging from 9.0 to 9.42, by the end of the intervention phase. A discussion of the results for each of the individual strategies follows.

### **Self-instruction and Self-monitoring**

The researcher, after looking at the visual analysis, concluded there was a functional relationship between the pre-service teacher's receiving SRL training + *eCoaching* and her ability to explicitly and implicitly teach self-monitoring and self-instruction. Overall, the mean frequency of her self-instruction and self-monitoring instruction during the intervention was 9.0 (ranging from 7 to 10). The percentage of data points that fell on or within the median level and stability envelope was 66.67%. The percentage of data points that fell on or within the trend line and stability envelope was 100%. Thus, she had an improving, variable level and an accelerating, stable trend in the frequency of self-instruction and self-monitoring instruction. During the first maintenance phase session, the pre-service general education teacher participant's frequency of use of explicit and implicit self-instruction and self-monitoring instruction was 8 and 10 in the second session. As seen in Table 4, the PND for the pre-service general education teacher participant was 100% between conditions, therefore, the intervention was very effective at improving her ability to providing instruction on self-instruction.

### **Goal Setting**

The researcher, after viewing the visual analysis of the teacher participant data, concluded there was a functional relationship between the pre-service general education teacher receiving SRL training + *eCoaching* on her ability to explicitly and implicitly

teach goal-setting. Overall, the frequency of her use of goal-setting averaged 9.42 (ranging from 7 to 10). The percentage of data points that fell on or within the median level and stability envelope was 91.67%. The percentage of data points that fell on or within the trend line and stability envelope was 100%. Thus, she had an improving, stable level and an accelerating, stable trend in the frequency of goal-setting instruction. During the first maintenance phase session, the pre-service general education teacher participant's frequency of explicit and implicit goal-setting instruction was 8 and 10 in the second session. As seen in Table 4, the PND for the pre-service general education teacher participant was 100% between conditions, therefore, the intervention was very effective at improving her ability to provide instruction on goal setting.

### **Self-reinforcement**

Again, after looking at the visual analysis, the researcher concluded the pre-service general education teacher demonstrated a functional relationship between receiving SRL training + *e*Coaching and her ability to use self-reinforcement instruction. Overall, her mean frequency of use of self-reinforcement during the intervention phase was 9.4 (ranging from 8 to 10). The percentage of data points that fell on or within the median level and stability envelope was 100%. The percentage of data points that fell on or within the trend line and stability envelope was 100%. Thus, she had an improving, stable level and an accelerating, stable trend in the frequency of self-reinforcement instruction. During the first maintenance phase session, the pre-service general education teacher participant's frequency of explicit and implicit goal-setting instruction was 4 and 4 in the second session. As seen in Table 4, the PND for the pre-service general education

teacher participant was 100% between conditions, therefore, the intervention was very effective at improving her use ability to provide instruction on self-reinforcement.

### **Student's Use of Self-Regulated Learning Strategies**

To answer the second research question, “How does a pre-service general education teacher’s receiving SRL training + *e*Coaching on instruction in SRL strategies impact her student’s use of those strategies?” the researcher collected data at 25 data points over the course of the experiment across three behaviors: (a) self-monitoring and self-instruction, (b) goal-setting, and (c) self-reinforcement. Following Kratochwill et al.’s (2010) guideline that at least three data points are necessary to demonstrate an effect at a given phase, the researcher collected data at five points during the baseline phase, at six during the first intervention (implementation of self-monitoring and self-instruction), at seven during the second intervention (implementation of goal-setting), and at five during the third intervention (self-reinforcement). As noted previously, because the pre-service general education teacher participant completed her student teaching requirement during the maintenance phase, data in this phase were gathered at only two points. The data from the maintenance phase is visually represented in Figures 4 and 5, but not used in the calculations conducted to determine effect.

The student’s use of self-instruction was measured by the tallies he recorded during each observational period (i.e., occurrence or non-occurrence of self-instruction). The researcher then calculated the percentage of self-instruction. During the implementation of the second and third behaviors, the student recorded his goal and self-reinforcement on the same sheet on which he collected his self-instruction tallies. The

researcher measured goal setting and self-reinforcement as occurring or not occurring during each observational period across behaviors and converted these to percentages.

Comparison of the percentage of SRL strategies used in the baseline phase to that of the percentage after the pre-service teacher began her online SRL training plus *eCoaching* showed a strong improvement in the student's use of SRL strategies across all behaviors. As can be seen in Figure 4, overall, the mean percentage of the student participant's use of the four SRL strategies improved from 0% to 98.17% by the end of the intervention phase. A discussion of the results for each of the individual behaviors follows.

### **Self-instruction**

Looking at the visual analysis of the student participant's results, the researcher concluded there was a functional relationship between the pre-service general education teacher's receiving SRL training plus *eCoaching* and the student's ability to use self-instruction. His use of self-instruction over the intervention phase of the study ranged from 71.42% to 100%, for a mean of 94.5%. The percentage of data points that fell on or within the median level and stability envelope was 77.8%. The percentage of data points that fell on or within the trend line and stability envelope was 77.8%. Looking at the results, the researcher identified an improving, variable level and an accelerating, stable trend in the student's percentage self-instruction. During both maintenance phase sessions, the student participant had 100% use of self-instruction. As seen in Table 3, the PND for the student participant was 100% between conditions, therefore, the intervention was very effective at improving his use of self-instruction.

## **Goal Setting**

Again, looking at the visual analysis, the researcher concluded there was a functional relationship between the pre-service general education teacher's receiving SRL training + *e*Coaching and the student's ability to engage in goal setting. Overall, the mean percentage of his improvement in his use of goal setting was 100%. The percentage of data points that fell on or within the median level and stability envelope was 100%. The percentage of data points that fell on or within the trend line and stability envelope was 100%. Thus, he had an improving, stable level and an accelerating, stable trend in his percentage of goal-setting. During both maintenance phase sessions, the student participant had 100% use of goal-setting. As seen in Table 3, the PND for the student participant was 100% between conditions, therefore, the intervention was very effective at improving his use of goal setting.

## **Self-reinforcement**

Lastly, the researcher concluded—after viewing the visual analysis—that there was a functional relationship between the pre-service teacher's receiving SRL training + *e*Coaching and the student's ability to use self-reinforcement. Overall, the mean percentage of his use of self-reinforcement was 100%. The percentage of data points that fell on or within the median level and stability envelope was 100%. The percentage of data points that fell on or within the trend line and stability envelope was 100%. Thus, he had an improving, stable level and an accelerating, stable trend in the percentage self-reinforcement. During both maintenance phase sessions, the student participant had 100% use of self-reinforcement. As seen in Table 3, the PND for the student participant was

100% between conditions, therefore, the intervention was very effective at improving his use of self-reinforcement.

### **Student Engagement**

The third research question was “How does a pre-service general education teacher’s SRL strategy use during instruction impact her student’s engagement in learning?” To answer this question, the researcher employed interval time sampling to measure the frequency of student engagement and disengagement during each observational period across all three behaviors. Overall, the mean percentage of student engagement during baseline was 100%. He had a zero celerating and stable level and trend of engagement. During the intervention, the mean percentage of disengagement was 0%. The percentage of data points that fell on or within the median level and stability envelope was 100%. The percentage of data points that fell on or within the trend line and stability envelope was 100%. Thus, he had a zero celerating and stable level and trend of disengagement.

### **Pre-Service Teacher’s Self-Reflection**

The fourth and final research question was “How does a pre-service general education teacher’s participation in online SRL training + *e*Coaching impact her own self-reflection?” To answer this question, the researcher gave the pre-service general education teacher three prompts after each lesson to reflect on her teaching. The three prompts were, (a) Describe what went well with the lesson, (b) Describe what could be improved, and, (c) What action(s) would you take to make such improvements? The researcher collected the pre-service general education teacher’s written self-reflection

statements after each observation, 25 in total. Using these written self-reflection statements, the researcher conducted thematic analysis (i.e., magnitude analysis) to analyze how the pre-service general education teacher reflected after teaching with and without the support of the online SRL module + *eCoaching*. The researcher describes the results in the following subsections.

### **Magnitude Analysis**

During baseline, the pre-service teacher did not use any self-judgment comments ( $n = 0$ ) when reflecting upon what went well with a lesson, what area(s) could be improved, and what action(s) she would take to make such improvements. Rather she only used self-reaction comments ( $n = 4$ ). During the intervention, the pre-service teacher did not use any self-judgment comments ( $n = 0$ ) and only used self-reaction comments ( $n = 19$ ). For example, the researcher applied the self-reaction code to statements such as the following, “I also did not have to prompt some students in monitoring. One of these students transferred this over to math today (the monitoring her work) which was nice to see.” An example of a self-judgment comment could have been, “The students struggled with using self-talk today, I do not think I provided explicit instruction like I learned in the module. I will need to go back and review the module.”

### **Social Validity**

To measure the social validity of the online SRL training + *eCoaching* on self-regulated learning during teaching and learning, the pre-service teacher and student participant were asked to complete a social validity questionnaire (Kazdin, 2011). On a scale of 1 (strongly disagree) to 5 (strongly agree). The teacher participant rated six of 14

statements with a 4, agreeing that SRL strategies focus on an important behavior, warrant being taught to students, produced effective results, were easily incorporated into her classroom, and that the online SRL training and *eCoaching* had strengthened her skills as a teacher. She “strongly agreed” or gave a rating of 5 to the other eight statements. In summary, she strongly agreed that she understood how to teach SRL strategies, could accurately implement them, and had the necessary training and support and the time to implement the strategies; she agreed that the online SRL training was accessible, practical, and useful and that she saw an increase in her students’ use of SRL strategies because of her SRL instruction.

The student participant rated his social validity using combinations of pictures and words: (a) a smiley face and “yes,” (b) a straight face and “maybe,” and (c) a frown face and “no.” The student reported that the SRL strategies “maybe” helped him pay attention and responded “yes” that the SRL strategies helped him learn and he liked using them.

### **Reliability**

Following Kratochwill et al.’s (2010) guidelines for inter-observer agreement, the researcher randomly selected 25% of the 25 recorded video files ( $n = 8$ ) and student data sheets ( $n = 8$ ) for each condition and across behaviors. The researcher calculated the reliability as described in Chapter III: number of agreements divided by the number of agreements plus disagreements, multiplied by 100.

Using these randomly selected video files, an independent coder watched and used interval time sampling methods to record the frequency of the pre-service teacher’s



explicit and implicit SRL instruction (i.e., occurrence or non-occurrence) and student's engagement (i.e., engaged or disengaged). Then to find inter-rater reliability, the researcher compared her observations with the secondary coder's by recording agreements and disagreements. Overall, inter-rater reliability between and across behaviors was 100%. Also, the researcher assessed the frequency of *eCoaching* feedback between and across each behavior. The same secondary coder examined the *eCoach's* comments and coded for the *eCoach's* use of encouraging, questioning, or instructional comments. Inter-observer agreement for *eCoaching* feedback across behaviors and conditions was 98% (ranging from 96% to 100%).

A second coder also checked the reliability of the researcher's magnitude analysis. Checking the reliability of the researcher's magnitude analysis, this coder used the a priori codes selected by the researcher and assigned codes to each of the teacher participant's written reflections, then entered the total value for each code into an Excel sheet. The percentage of agreement was 98%, well above Kratochwill et al.'s (2010) acceptable level of inter-coder reliability.

### **Treatment Fidelity**

The ratio of the *eCoach's* encouraging statements to instructing statements was also calculated. Following guidelines set forth by Sugai and Horner (2002)—positive behavior support researchers—Rock et al., (2012) recommend using a 4:1 ratio of encouraging *eCoaching* statements to instructing ones. In this study, the *eCoach's* combined ratio of encouraging statements to instructing statements was 3.35:1 across all behaviors. The ratio of the *eCoach's* encouraging comments to self-instructing ones

across the three behaviors—self-monitoring and self-instruction, goal-setting, and self-reinforcement—was 2.45:1, 8.15:1, and 3.38:1, respectively. Thus, for self-monitoring and self-instruction and self-reinforcement behaviors, the *e*Coach did not maintain Rock et al.'s (2012) suggested 4:1 ratio. But, for the goal-setting behavior, the *e*Coach did maintain a 4:1 ratio.

### **Summary**

The purpose of this study was to investigate the effects of *e*Coaching on the pre-service teacher's SRL instruction in SRL strategies and the student's use of those techniques. To answer the dissertation study research questions, the researcher conducted multiple forms of analysis on the collected data: interval time sample observations and written self-reflections. The results of these analyses showed that after the online SRL training + *e*Coaching, the pre-service teacher was able to teach SRL strategies to her student with a disability, reaching a frequency of 9.13 in her use of explicit and implicit SRL strategy instruction across all behaviors. The frequency of the student participant's use of self-instruction also improved within and between all conditions, reaching a mean of 98.17% during the intervention phase, and his engagement during intervention phase was 100%.

Social validity was rated at the end of the final condition (maintenance phase). The pre-service general education teacher participant reported that the online SRL training + *e*Coaching strengthened her skills as a teacher, improved her SRL instruction, and improved her student's use of SRL strategies. She also reported that the online SRL

training was accessible, practical, and useful and the SRL strategies were easily incorporated into her instruction.

Inter-observer agreements were assessed in order to ensure consistency with measurement of the pre-service general education teacher's explicit and implicit strategy instruction and self-reflection, *eCoach* feedback, and student SRL strategy use and engagement. The reliability of all identified behaviors exceeded minimum levels of agreement throughout all phases, thereby supporting the integrity of the study. *eCoach* fidelity data confirmed the *eCoach* provided the recommended 4:1 ratio of encouraging comments to instructing comments for one of the three behaviors during the intervention.

## CHAPTER V

### DISCUSSION

The purpose of this study was to investigate the efficacy of online SRL training module + *eCoaching* provided to a pre-service general education teacher as she delivered SRL instruction during reading lessons to her students, including one with a disability. After a brief summary of the study, the researcher discusses main findings derived from this study, limitations, implications, and directions for future SRL research and practice with pre-service teachers and their students with disabilities.

#### **Summary of Study**

Drawing on Zimmerman and Campillo's (2003) model of self-regulation and Joyce and Shower's (2002) coaching model (sans group coaching), the researcher developed a theoretical framework for this investigation of the effects of online SRL module + *eCoaching* on a pre-service teacher's SRL instruction and a student's use of SRL strategies. The four SRL strategies employed in this study were self-monitoring, self-instruction, goal setting, and self-reinforcement, which the pre-service general education teacher learned—during the intervention phase—how to explicitly and implicitly teach in three stages. In the first of these stages, the pre-service teacher used the online SRL module to learn how to explicitly and implicitly teach self-monitoring and self-instruction, then transferred this knowledge to practice with the support of the

*eCoach*'s feedback on these strategies. In the second stage and third stages, these same steps were followed to add goal setting and self-reinforcement, respectively, to the previous strategies. Although previous researchers had found that these four strategies, used alone or in various combinations, can improve students' SRL, none had investigated the use of all four to support the SRL of students with disabilities.

As noted in Chapter II, Rock et al. (2009, 2012, & 2014) and Scheeler et al. (2010) have shown that *eCoaching* can improve teachers' use of evidence-based practices. In this investigation the researcher extended these findings by testing the effect of an online SRL module + *eCoaching* during a pre-service general education teacher's SRL instruction during reading lessons. The researcher used these findings to provide additional support for the use of *eCoaching* with pre-service general education teachers.

Although the findings of this investigation are not conclusive given its limited time and small sample size, the results from the participating pre-service teacher's social validity report confirmed that the online SRL training was feasible, practical, and useful and that the time needed to implement these learned strategies was reasonable. The pre-service teacher reported seeing an increase in the student's use of SRL strategies because of her SRL instruction, and results from the student participant's social validity report confirmed that the student liked the SRL strategies and believed they had helped him learn.

The researcher analyzed results of this study and produced findings regarding the independent and dependent variables. In the following sections, the researcher discusses

the main findings from this study followed by an analysis of the findings for future SRL research and practice.

### **Convergent Findings**

Based on the analysis of the results from this study, the researcher identified findings similar to those of other researchers who have conducted research in the field of special education, teacher preparation, and self-regulated learning.

### **Participant Recruitment**

After stringent and systematic recruitment efforts, the researcher of this study was unable to recruit the intended number of pre-service special education teacher participants (i.e., three to five). As previously stated in Chapters III and IV, out of a potential 25 pre-service general and special education teachers, the researcher was only able to recruit one pre-service general education teacher. The researcher's inability to recruit the intended number of participants for this research could be attributable to the lack of a research culture in Institution 1 and 2. When individuals at an institution share in a research culture they value and give significance to research, which then creates respect for researchers and their research practices within the institution. Therefore, when research is proposed at an institute with an established research culture, individuals could be more likely to participate.

Also, the researcher's inability to recruit the intended number of participants could also be attributable to the difficulty to recruit participants in the field of special education. As Odom et al. (2005) have posited, research in special education is

challenging because of the complexity inherent in the field and as a result can make it difficult for researchers to recruit participants for research studies.

### **Pre-service Teacher SRL Training**

As described in Chapter II, in this study, the researcher used Joyce and Showers' (1982) coaching model, sans group coaching, to support the pre-service general education teacher's ability to build knowledge of SRL strategies and transfer this learning to practice. The researcher enhanced Joyce and Showers' coaching model and applied Mayer's (2014) 12 principles for multi-media instruction to create an online SRL module plus she used technology based on the work of Rock and colleagues (2009, 2012, & 2014) to provide one-on-one coaching. The researcher found that the pre-service general education teacher improved her ability to teach SRL strategies, which aligned with Rock et al.'s (2009, 2012, & 2014) findings that *eCoaching* can improve teachers instruction of evidence based practices.

Yet, in this study, the variable level in the pre-service general education teacher's use of self-monitoring and self-instruction—which aligned with the student's variable level of self-instruction—was probably due to the fidelity of the teacher's implementation of self-monitoring. In the intervention phase, during the implementation of the first behavior (i.e., self-monitoring and self-instruction), the *eCoach* had to instruct the pre-service general education teacher during and after teaching to use something to prompt her student to self-monitor his self-instruction during reading.

Also, the ratio of the *eCoach*'s encouraging to corrective feedback for the pre-service general education teacher's explicit and implicit self-instruction and self-

monitoring behavior was higher than Rock et al.'s (2012) recommended 4:1 ratio. The 4:1 ratio of an *eCoach*'s encouraging to instructing feedback is important because encouraging feedback supports teachers use of a new behavior and maintain behavioral momentum of the new behavior (Rock et al., 2009, 2012, & 2014; Sugai & Horner, 2002).

### **Pre-service Teacher SRL Instruction**

The results from this study demonstrated a functional relationship between the pre-service general education teacher participant's participation in the online SRL module + *eCoaching* and her ability to explicitly and implicitly use goal setting and self-reflection instruction (PND = 100% across both behaviors). Prior to the intervention, the pre-service general education teacher was not observed providing any SRL instruction. Once the intervention began, there was an abrupt change in her use of all four strategies. The pre-service general education teacher demonstrated an improving, variable level and accelerating, stable trend in her ability to provide explicit and implicit strategy instruction on self-monitoring and self-instruction during the intervention. The pre-service general education teacher demonstrated improving, stable levels and accelerating, stable trends in her ability to explicitly and implicitly provide goal setting and self-reinforcement instruction during the intervention.

These results are consistent with Michalsky & Schechter's (2013) and Perry, Hutchinson, & Thauberger's (2007) findings that pre-service teachers are capable of being mentored on using SRL instruction in the classroom. The pre-service general education teacher participant in this study increased her ability to teach all four SRL



strategies during reading instruction. The researcher of this study extended Michalsky & Schechter's (2013) and Perry, Hutchinson, & Thauberger's (2007) findings by including the measurement of SRL strategy use of a student with a disability.

### **Pre-service Teacher Reflection**

In this study, the pre-service general education teacher participated in a structured reflection after each observation. According to Michalsky and Schechter (2013) pre-service teachers' in their study who participated in systematic reflection after teaching improved their ability to promote SRL in classroom. Additionally, Perry and colleagues (2007, 2008) found that mentors explicit discussions of teachers' use of and promotion of SRL during debriefings supported the pre-service teachers' improvement in their promotion of SRL during instruction. In this study, the pre-service teacher participant used Moon's (1999) framework for reflective questioning and increased her reflection on SRL strategy instruction. Seeing that the teacher participant increased her use of SRL strategy instruction, her reflection after teaching may have contributed to this finding.

### **Students with Disabilities' SRL Strategy Use**

Aligned with Schunk and Ertmer (2005) and Schunk and Zimmerman (2008) who found students with disabilities can be taught how to self-regulated learning, the student with a disability in this study also increased his self-regulated learning. Also, researchers have found that the combination of SRL strategies is more effective in supporting student's SRL than the use of a single strategy (Dignath et al., 2010). In this study, the student stabilized his use of self-monitoring and self-instruction once the teacher began to use explicit and implicit goal setting instruction and the student began to set a goal, thus

supporting the notion that the combination of SRL strategies was more effective than using just one. Also, Perry et al. (2007, 2008) found second and third grade students were able to self-regulate their learning. The researcher of this study extended Perry and colleagues work by including a third grade student with a disability.

### **Divergent Findings**

Based on the analysis of the results from this study, this researcher identified findings that diverged from other researchers who have provided professional development to pre-service teachers on SRL instruction. Also, the researcher identified how findings from this research study diverged from how teacher educators have supported pre-service teachers' reflection during clinical placements. Based on these divergences, the researcher identified questions for future researchers.

### **Pre-service Teacher Training**

In Michalsky and Schechter's (2013) study, pre-service teachers completed 24 weekly 4-hour practical workshops, totaling 96 hours over the course of one school year. In Perry and colleagues' (2007, 2008) studies, the exact amount of hours was not reported, but the pre-service teachers' met throughout the course of a school year. Yet, in this research study, the pre-service teacher completed one SRL module at the beginning of the intervention, then went back to the module for review and to learn about how to explicitly and implicitly teach goal setting and self-reinforcement. All together, the pre-service general education teacher spent five hours immersed in learning about SRL instruction + eCoaching over the course of five weeks. Further analysis of the duration of pre-service general education teacher's learning SRL strategies showed that she engaged

in the goal setting and self-reinforcement behaviors for a combined total of three hours over the course of two weeks. Thus, the researcher concludes, compared to the seminal studies on pre-service teacher SRL teacher training, the online SRL module + *eCoaching* was more effective and efficient in providing the teacher the support to build her knowledge of SRL and transfer it to classroom instruction.

Although comparatively, the implementation of the online SRL module + *eCoaching* took less than the recommended time for the pre-service general education teacher to learn SRL and transfer these skills to practice, the researcher of this study emphasizes the online SRL module + *eCoaching* was developed and provided by an expert in online module development and *eCoaching* and she was a university doctoral scholar with extensive training in teacher preparation, *eCoaching*, and SRL. This highlight is important because *eCoach* feedback (online module independent variable) could be a potential issue in the effectiveness of teachers' instruction and students' performance (dependent variables). Thus, more work is needed.

An example of the *eCoach*'s impact on the pre-service general education teacher participant's performance was observed in regards to her use of self-judgments comments during her self-reflection. Although the *eCoach* in this study used the pre-service general education teacher's self-reflection comments to guide the *eCoaching* feedback provided in the following sessions, the *eCoach* did not provide feedback to support the pre-service general education teacher's use of self-judgment. For instance, the *eCoach* could have prompted the pre-service general education teacher during teaching to "Think back to the online module" or "Remember when you learned how to explicitly teach self-

monitoring.” Additionally, the *eCoaching* feedback provided to the pre-service general education teacher on her use of self-instruction and self-monitoring was potentially more often leading feedback (e.g., prompting to use self-monitoring and self-instruction) than following, as evidenced by the 2.45:1 ratio of encouraging to instructing feedback. Again, the *eCoach*’s feedback is important because, as Sugai and Horner (2002) and Rock et al. (2009, 2012, & 2014) have discussed, a ratio of 4:1 encouraging to instructing feedback encourages the behavior change of teachers and students. Thus, further information and analysis on positive momentum for low rates of teacher SRL instruction student strategy use is need.

### **Quantity of SRL Strategy Instruction**

The researcher measured the quantity of the pre-service general education teacher’s explicit and implicit SRL strategy instruction, but currently there is no literature to support how much a SRL instruction a student needs to improve, maintain, and generalize his/her use of the strategies. The pre-service teacher improved her ability to provide instruction on self-monitoring and self-instruction, but she was unable to do so consistently during the intervention, even with support from the *eCoach*. Yet, although she decreased her use of SRL strategies in the maintenance phase, the student continued his use of all three SRL strategies, and did so at the highest level.

### **Pre-service Teacher Self-Reflection**

The pre-service general education teacher participant in this study—across all phases—only used self-reaction statements (e.g., “Student could tell me the definition of self instruction. All students seemed to be thinking about questions they could be asking

themselves”) during her reflection and no self-judgment comments (e.g. “I saw students had difficulty remembering to self-monitor; and, I realized I did not explicitly teach them, so I went back to my online SRL module notes”). As noted in Chapter III, Zimmerman (2002) posited, individuals need to self-judge and self-react in regards to their performance in order to make progress toward a goal. In this study, the pre-service general education teacher only used self-reaction comments, in sum, she only reflected on her level of satisfaction and what adaptive changes she would make as she provided instruction for self-monitoring and self-instruction. She did not compare her instruction for self-monitoring and self-instruction with that of what she learned in the online SRL module nor did she attribute any errors or successes to what she learned about as best practices for implementing instruction of self-monitoring and self-instruction strategies.

The pre-service general education teacher’s self-reflection in this study was limited because she did not engage in any self-judgment during her self-reflection. This could have been attributed to the fact that the online SRL module did not include learning about self-reflection nor did it focus on the teacher’s own SRL. Also, the pre-service general education teacher did not learn about goal setting or monitoring her or her student’s progress of SRL. Yet, since she was learning a new skill and how to implement it during instruction, the pre-service general education teacher should have engaged in Zimmerman and Moylan’s (2009) model of SRL: forethought, performance, and self-reflection. Thus, the researcher concludes that opportunities for teachers’ self-evaluation need to be built into the online SRL module + *e*Coaching. Plus, student goals need to be

tied to life goals (e.g., “I need to learn to focus in class, so I can learn to focus in my job) (see Rock, 2005; Rock & Thead, 2007).

Also noted, the pre-service teacher reflected on the engagement of all students in the class, not just the student participant. So even though she reacted to her lesson and said they were not engaged, the one student participant was engaged. Had the pre-service general education teacher progress monitored the students engagement and use of SRL skills then possibly, the researcher suggests, she could have decreased her mismatched perception of student engagement.

### **Limitations**

In addition to the limitations discussed in Chapter I, several other limitations associated with single-subject research studies also affected this one. First, the internal validity was limited because this study only had one pre-service general education teacher. The researcher had intended recruiting and maintaining three to five pre-service teacher participants. However, because of the researcher’s inability to recruit and retain pre-service general and special education teachers, as described at length in Chapter III, the only one pre-service general education teacher participated in this study. Thus, the researcher was not able to demonstrate that the teacher or student outcomes were replicable across similar participants.

Second, the pre-service general education teacher’s schedule, unavoidable assemblies, field trips, release time for spring break, and other daily changes prevented the researcher from collecting at least three data points in the maintenance phase, which according to Kratochwill et al. (2010) is necessary to demonstrate an effect in a single-

subject research design. Thus, the results were not adequate to demonstrate that the teacher was able to effectively maintain SRL instruction after the intervention or the student participant was able to effectively maintain SRL strategy use, although the number of data points in the previous phases of the study exceeded that guideline, this study does not *meet standards* of a single subject design, according to Kratochwill et al.'s (2010) set standards.

Third, although the observation and coding procedures used in this investigation are based on theoretical guidelines, their reliability and validity have not been tested and psychometrically proven. Fourth, a ceiling effect occurred as a result of the interval time sampling method used to measure the pre-service general education teacher participant's use of SRL instruction. This limited the amount of SRL instruction that was measured to an upper limit (i.e., 10 occurrences).

Fifth, the student participant's self-instruction was a percentage converted from frequency counts; however, his goal setting and self-reinforcement were measured as occurring and not occurring. The researcher did not collect data on frequency of goal setting and self-reinforcement, which required her to compare these three behaviors with caution.

Sixth, the student participant was coded as behaviorally engaged if he was involved in learning, such as staying on task and participating, putting forth an effort, and demonstrating positive conduct through following rules and adhering to class norms, although it is possible that the student's behavior and body positioning may have suggested he was engaged at times in which he was not.

Seventh, the researcher was the intervention agent and the *eCoach*, which was a threat to the internal reliability and validity and thus limited the reliability of the effect of the independent variable. Eighth, this research design was not intended to be a component analysis. Therefore, there was no experimental control, thus limiting the ability to determine if the online SRL training module or the *eCoaching* had a larger effect on the dependent variables.

Ninth, the researcher did not measure the fidelity of pre-service general education teacher's explicit and implicit SRL strategy instruction and student's SRL strategy use. This limited the researcher's ability to assess the pre-service general education teacher's accuracy of SRL instruction.

Tenth, the pre-service general education teacher did not progress monitor her use of SRL instruction or her student's performance. This limited the pre-service teacher's ability to only use perceptions of student's performance and she was unable to identify and analyze her student's actual performance.

### **Implications**

In the following sections, the researcher, based on results of this study, identified several implications for future SRL research and practice.

#### **SRL Research**

First, after analyzing these findings, the researcher suggests future researchers examine the combinations of SRL strategies used during content-area instruction. In this investigation, the student participant learned self-monitoring and self-instruction, goal setting, and self-reinforcement, but researchers—such as Schunk & Bursuck (2013) and



Harris et al. (2012)—have noted other SRL strategies can be effective in improving the SRL of students with disabilities. Questions for researchers include: How many strategies are most effective? In what order should students learn the strategies? What combinations are most effective?

Additionally, researchers need to assess when SRL strategies need to be used and who needs to use them. The researcher of this study demonstrated SRL strategies can be integrated into reading instruction, yet, more research needs to be conducted on when the SRL strategies need to be implemented in reading (e.g., every day or every other day) and in what other content areas (e.g., mathematics, science, social studies). Plus, every student with or without a disability may not need to learn each SRL strategy. For example, a student may be skilled in setting appropriate goals but not providing self-reinforcement so he may have difficulty reaching his goals.

### **Pre-Service General Education Teacher SRL Instruction**

Since the pre-service general education teacher decreased her frequency of explicit and implicit SRL strategy instruction while the student maintained his use of the SRL strategies, this raises a discussion on how much SRL instruction is needed and how a teacher's gradual release of SRL instruction during teaching is measured. Although there is literature to support how teachers can create high-SRL environments (e.g., Michalsky and Schechter, 2013), there is no literature on how much time teachers need to spend on SRL instruction. Yet, researchers agree a primary goal of teaching SRL is to support students in being able to independently use “highly effective approaches to learning that are associated with success in and beyond school” (Perry, Phillips, &

Hutchinson, 2006, p.237). Researchers (Rock, 2005; Rock & Thead, 2007) have already investigated how teachers can fade a strategic self-monitoring intervention with students' with diverse needs, however, no research has been conducted on how much SRL instruction teachers need to provide and when to gradually release SRL instruction using a combination of SRL strategies. So future research is needed in this area.

According to Zimmerman (2002), to use self-judgment during self-reaction an individual must (a) self-evaluate and (b) self-react. Self-judgment, as mentioned in Chapter II, requires individuals to make comparisons of self-observed performance (e.g., systematically monitoring own performance, recording data, comparing prior performance, previous established goals, or absolute standard of performance) and attributing the successful or unsuccessful outcomes of he students to her instruction. Although the three reflection prompts after each lesson supported the pre-service general education teacher's conscious and structured reflection, the prompts did not support her ability to make self-evaluation statements and as a result she only self-reacted to each lesson (e.g., she described she felt like went well and what she could improve upon). This is not surprising given Etscheidt et al.'s (2012) position that pre-service teachers must develop an awareness of decisions they make during teaching (reflection in action) and a critical analysis of their practice after teaching (reflection on action). Additionally, the three self-reflection prompts did not prompt the pre-service general education teacher to self-evaluate. Future researchers need to examine the impact of *eCocahing* during teacher's reflection of SRL instruction.

### **Pre-service Teacher Educator Practice**

Although previous researchers (Michalsky & Schechter' 2013; Perry et al. 2007, 2008) have shown pre-service general education teachers' transfer of knowledge can be supported through systematic reflection with mentor teachers, faculty, and experts in SRL, the teachers in those studies received SRL training programs that ranged from 24 weeks to 12 months. Based on evidence from this study, the researcher concluded that pre-service general education teachers can learn SRL strategies and implement them using explicit and implicit instruction in five hours over the course of five weeks and during their clinical practice without interfering with the time and content of other courses. The researcher recommends personnel from both general and special education teacher preparation programs to include explicit instruction in SRL practices through the use of an online SRL training module + *eCoaching* during the pre-service special and general education teacher's clinical experience.

Additionally, given that many teacher educators have incorporated reflective practices into their programs to support pre-service teachers' ability to think critically, make self-evaluations, and make changes to teaching situations (Brownell et al., 2005; Roffey-Barensten & Malthouse, 2013; Schön, 1983), further research is needed to investigate how to support pre-service general education teachers' ability to move from self-reaction statements on their use of SRL instruction to a combination of self-reaction and self-evaluation statements.

In most general education public school classrooms where 80% of students with disabilities spend the majority of their day (U.S. Department of Education, 2008), general

education teachers need to receive the support and training necessary to carry out effective SRL instruction. Personnel from both general and special education teacher preparation programs should include explicit instruction in SRL practices through the use of an online SRL training module + *eCoaching* during the pre-service special and general education teachers' clinical experience.

### **Future Directions**

The researcher extends the findings of previous *eCoaching* investigations by examining the effects of online SRL module training + *eCoaching* on one pre-service general education teacher and one of her students with a disability. Yet, as Zimmerman (1990) pointed out, any learner can struggle with self-regulating learning, not just learners with disabilities, and thus both pre-service and in-service general and special education teachers need to learn and implement SRL strategy instruction for students with and without disabilities. Therefore, in the future, researchers should investigate the effects of online SRL module training + *eCoaching* on pre and in-service general and special education teacher's SRL instruction and the impact on their students with and without disabilities' SRL. Researchers should also conduct future investigations to tease out the effects of online training and *eCoaching* to see if alone one has a larger effect on pre-service teachers ability to build SRL knowledge and transfer this learning to classroom practice.

The limitations of this study confirm further replication should be conducted. For example, future SRL researchers should use single subject research designs and strive to include larger samples of pre-service teacher participants—both general and special

education programs. Also, researchers should examine the effectiveness of online SRL training + *e*Coaching over extended periods of time and the maintenance of teachers' acquired SRL instruction and students' SRL strategy use without the support of the *e*Coach. Researchers should vary the use of single subject designs and investigate the integration of booster sessions in maintenance and generalization phases if participants show a decrease in use of SRL instruction or strategies. For example, the teacher participants could revisit the online module or additional *e*Coaching could be provided.

In the future, researchers should also consider using other instruments that assess self-regulation to measure the dynamic nature of teachers' SRL instruction and students' SRL strategy use. As described by Boekaerts and Corno (2005) instruments that assess self-regulation include, but are not limited to, think aloud protocols, interview evidence, traces of mental events and processes (e.g., student work samples), and recording student motivation strategies as they work. These assessments allow researchers to capture the dynamic process of SRL and examine how ones' SRL unfolds within particular contexts and events (Moos & Ringald, 2012; Winne & Perry, 1997). Researchers should consider mixed methods research designs (Creswell & Plano Clark, 2011) to use these assessments to capture teachers' and students' dynamic nature of SRL. For example, an embedded design could be used to combine both quantitative and qualitative data within a traditional quantitative or qualitative research design (Creswell & Plano Clark, 2011).

Moving beyond investigating the impact of pre-service general education teachers learning and teaching SRL strategies, future researchers should also focus on how improved knowledge and practice of other non-cognitive skills impacts students with and

without disabilities' academic and behavioral outcomes. As previous researchers have found (Blair and Ravier, 2014; Schwienhart et al., 2005), students who have developed their non-cognitive skills experience better life outcomes, such as higher academic achievement, higher graduate rates, better financial success, and greater well-being, than those who have not. Thus, integrating non-cognitive, 21<sup>st</sup>-century skills, into teaching and learning can overcome the detrimental effects when students do not learn these skills. Accordingly, future researchers and personnel from special and general teacher preparation programs should advocate for and design and implement programs to support pre-service teachers' ability to promote interpersonal (e.g., social awareness) and intraprofessional (e.g., self-control) skills.

### **Conclusion**

At the completion of this research study, it has been five months since the reauthorization of ESSA and Gabrieli et al.'s (2015) urgent call for policy makers and educators to integrate non-cognitive skills into educational policy and practice. This broadening of our nation's educational focus from students' cognitive and academic outcomes to also include such competencies is challenging teacher educators to change the ways in which they support pre-service teachers' acquisition of the knowledge and skills necessary to integrate non-cognitive skills into the general education classroom for all students, including students with disabilities. The results of this dissertation study, although limited and preliminary, lend initial support to the efficacy of using an online SRL training module and *eCoaching* to facilitate transfer of pre-service general education teachers' instruction in non-cognitive skills to their work in the classroom.

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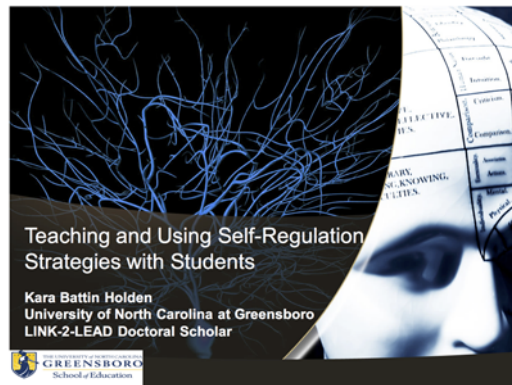
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## APPENDIX A

### SRL TRAINING POWERPOINT FROM PILOT STUDY



## Self-Instruction

- **Self-Instruction**

- Verbalizations, or self-instruction, improve learning and are critical for self-regulation (Schunk, 1982).
- Self-directed orders or descriptions about the task being performed (Panadero, 2014).
- For example when a student asks himself during a reading exercise about the steps to comprehend what is being read.

- **Handout**

- *Basic Forms of Self-Instruction With Examples* from Diana Browning Right, Behavior/Discipline Trainings

Do something bigger altogether

## Self-Recording

- **Self-Recording**

- Helps with awareness of things that could have gone undetected before
  - For example, recording (via tally marks) number of times imagery and self-instruction is used during reading lesson
- Monitors and enhances reflection once task is completed
- Written document of actions (cognitive or behavioral)

- **Handout**

- Student Self-Monitoring: Frequency Count (Intervention Central)  
[https://www.interventioncentral.org/self\\_management\\_self\\_monitoring](https://www.interventioncentral.org/self_management_self_monitoring)

Do something bigger altogether

## Teacher Direct Instruction & Modeling of Self-Instruction

- Teacher explains to student **how to use** self-instruction and **when to use**
  - How to use example: You say or tell yourself what you need to do to complete a task.
  - When to use example: "When you have trouble answering questions about a story, you might ask yourself "What is it I have to do here?" or "What is my first step."

*Do something bigger altogether*

## Teacher Direct Instruction & Modeling of Imagery

- Teacher explains to student **how to use** imagery and **when to use**
  - How to use example: "When you make a picture in your brain about what the characters look like or sound like you are using imagery."
  - When to use example: "We are trying to remember the characters from the book we read last week. Let's use imagery to remember what the characters looked liked and sounded like."

*Do something bigger altogether*

## Teacher Direct Instruction & Modeling of Self-Recording

- Teacher explains to student **how to use** self-recording and **when to use**
  - How to use example: "Make a tally mark for imagery on your record sheet."
  - When to use example: After recalling characters from the book last week the teacher prompts: "You used imagery. Record your tally now!"

*Do something bigger altogether*

## Rationale

- Professional development without follow-up coaching produced an effect size of 0.0, but professional development with such coaching produced an effect size of 1.42 (Joyce & Showers, 2002).



*Do something bigger altogether*

## Why Coaching?

- **Improves teacher performance** (Joyce & Showers, 1980)
- **Increases implementation of evidence-based practices** (Kretlow & Bartholomew, 2010)
- **Provides Individualized support** (Gersten, Morvant, & Brengelman, 1995)
- **Improves instruction and student outcomes** (Denton & Hasbrouck, 2009; Joyce & Showers, 1980).

*Do something bigger altogether*

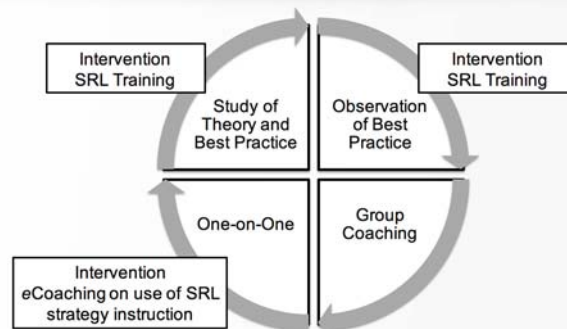


## Coaching Defined

- Coaching-  
"characterized by an observation and feedback cycle in an ongoing instructional or clinical situation" (Joyce & Showers, 1982, p. 170).
- eCoaching-  
"a relationship in which one or more persons' effective teaching skills are intentionally and potentially enhanced through online or electronic interactions with another person" (Rock et al., 2012).

*Do something bigger altogether*

## Coaching Continuum



Adapted from Joyce & Showers (1982)

*Do something bigger altogether*

## APPENDIX B

### VERBAL RECRUITMENT SCRIPTS

#### **Verbal Recruitment Script – Teacher Participant**

Hello - My name is \_\_\_\_\_ and I am a \_\_\_\_\_ (e.g., graduate student) from \_\_\_\_\_ (e.g., higher education institute). The researcher of this study (i.e., Kara Holden) is interested in how to better help teachers use and teaches self-regulation strategies to improve student outcomes. Since you are a teacher you are being asked to participate in this research study. If you decide to participate in this study, you will be observed and recorded during regularly scheduled reading lessons. You will also participate in professional development training on self-regulation strategies. Following the training, I will provide you with coaching during your regularly scheduled reading lessons. All lessons will be recorded.

I am going to pass out two copies of the informed consent form. Please read the form carefully. If you choose to participate, please check “yes” and sign the form. If you choose not to participate, please check “no” and sign the form. After you have carefully read the form and decided, please give me only one copy of the signed form. If you have any questions about the study, please contact me. My phone number and email address are listed on your copy of the informed consent document.

Remember, this is completely voluntary. You can choose to be in the study or not.

Thank you so much.

#### **Verbal Recruitment Script – Student Participants (5-16 years old)**

Hello - My name is \_\_\_\_\_ and I am a \_\_\_\_\_ (e.g., graduate student) from \_\_\_\_\_ (e.g., higher education institute). The researcher of this study (i.e., Kara Holden) is interested in how to better help teachers use and teaches self-regulation strategies to improve student outcomes. Since you are a student in \_\_\_\_\_ class you are being asked to participate in this study. If you agree to participate, I will video record your reading lessons and ask you to complete a short survey. Your parents have agreed for you to be in this study.

I am going to pass out two copies of the informed consent form. Please read the form carefully. If you choose to participate, please check “yes” and sign the form. If you choose not to participate, please check “no” and sign the form. After you have carefully read the form and decided, please give me only one copy of the signed form. If you have any questions about the study, please contact me. My phone number and email address are listed on your copy of the informed consent document.

Remember, this is completely voluntary. You can choose to be in the study or not.

Thank you so much.

APPENDIX C

CONSENT AND ASSENT FORMS

UNIVERSITY OF NORTH CAROLINA AT GREENSBORO

CONSENT FOR A MINOR TO ACT AS A HUMAN PARTICIPANT

Project Title: Impact of self-regulated learning coaching on teachers and student outcomes

Principal Investigator and Faculty Advisor: Kara Battin Holden, UNCG; Marcia L. Rock, Faculty Advisor, UNCG

Participant's Name: \_\_\_\_\_

**What are some general things you should know about research studies?**

Your child is being asked to take part in a research study. Your child's participation in the study is voluntary. You may choose for your child not to join, or you may withdraw your consent for him/her to be in the study, for any reason, without penalty.

Research studies are designed to obtain new knowledge. This new information may help people in the future. There may not be any direct benefit to your child for being in the research study. There also may be risks to being in research studies. If you choose for your child not to be in the study or you choose for your child to leave the study before it is done, it will not affect your relationship or your child's relationship with the researcher or the University of North Carolina at Greensboro.

Details about this study are discussed in this consent form. It is important that you understand this information so that you can make an informed choice about your child being in this research study.

You will be given a copy of this consent form. If you have any questions about this study at any time, you should ask the researchers named in this consent form. Their contact information is below.

**What is the study about?**

This is a research project. Your child's participation in this project is voluntary. I want to learn about how a coach can help teachers and students use self-regulation strategies. Self-regulation can also be described as how a person responds to challenges. The researcher will be observing teacher and student use of self-regulation. If given permission, your child will participate in reading lessons just as they normally do and complete a short survey about self-regulation/self-control.

**Why are you asking my child?**

We would like your child to participate in this study because they part of \_\_\_\_\_ class.

**What will you ask my child to do if I agree to let him or her be in the study?**

Your child will participate in reading lessons just as they normally do. I will record all reading lessons. The study will last approximately 7-10 weeks. Your child will be asked to complete a short survey on self-control.

If you choose for your child to not be in the study he/she will not be video-recorded, nor will data be collected from your child.

**Is there any audio/video recording of my child?**

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Your child will be videotaped during a portion of this study. If you have any questions please discuss this with the researcher. Because your child will be potentially identifiable by anyone who views/ hears the tape, confidentiality for things said on the tape cannot be guaranteed although the researcher will try to limit access to the tape as described below. Recordings will be kept in a locked, safe place and only the research team will have access to the recording. All recordings will be encrypted and kept in a locked, safe place until verbal and non-verbal aspects of the participant interactions are coded. The link sheet will be stored separately from the data in a locked, safe filing cabinet in the researcher's office. After the collection and linking of the data to participants, the link sheet will be destroyed. All other paper and electronic data will be stored in a separate locked, safe place in the researcher's office for a minimum of three years following the study. Electronic data will be stored on a password protected, secure, and safe hard drive in the researcher's office for a minimum of three years following the study.

**What are the dangers to my child?**

Potential risks may include breach of confidentiality, which is always a risk in data collection. Measures to keep data in a locked, safe place will be taken during all times in this study. This study is voluntary, and at any time you may opt to discontinue participation in this study. The Institutional Review Board at the University of North Carolina at Greensboro has determined that participation in this study poses minimal risk to participants.

If you have questions, want more information or have suggestions, please contact Kara Holden, LINK-2-LEAD doctoral scholar at the University of North Carolina, Greensboro (UNCG), Specialized Education Services (716) 983-0919 or by email at [k\\_battin@uncg.edu](mailto:k_battin@uncg.edu) or you may contact my faculty advisors, Dr. Marcia Rock at the University of North Carolina, Greensboro, Specialized Education Services at [mlrock@uncg.edu](mailto:mlrock@uncg.edu).

If you have any concerns about your rights, how you are being treated, concerns or complaints about this project or benefits or risks associated with being in this study please contact the Office of Research Integrity at UNCG toll-free at (855)-251-2351.

**Are there any benefits to society as a result of my child taking part in this research?**

Through scholarly dissemination of scientific knowledge gained from this study, society members may gain a better understanding of the impact of coaching on teachers' use of self-regulation strategies and the impact on student achievement.

**Are there any benefits to my child as a result of participation in this research study?**

There are no direct benefits. Benefits may include your child learning new strategies to him/her learn, participate, and pay attention in class.

**Will my child get paid for being in the study? Will it cost me anything for my kid to be in this study?**

There are no costs to you or your child or payments made for participating in this study.

**How will my child's information be kept confidential?**

All information obtained in this study is strictly confidential unless disclosure is required by law.

No data that will identify individual subjects be published or in any way disclosed to third parties. Only project personnel will have access to information regarding participant's identity. Participants' identities will not be included on the survey or the data. Digital videotaping will

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occur during the study, provided the participant approves this. In compliance with federal regulations, all recordings will be encrypted and kept in a locked, safe place until verbal and non-verbal aspects of the participant interactions are coded. After the collection and linking of the data to participants, the link sheet will be destroyed. All paper and electronic data will be stored in a locked, safe filing cabinet in the researcher's office for a minimum of three years following the study. Electronic data will be stored on a password protected, secure, and safe hard drive in the researcher's office for a minimum of three years following the study.

Recordings will be kept in a locked, safe place and only the research team will have access to the recording. The master list and all paper data will be stored in a locked, safe filing cabinet in the researcher's office for a minimum of three years following the study. Electronic data will be stored on a password protected, secure, and safe hard drive in the researcher's office for a minimum of three years following the study.

**What if my child wants to leave the study or I want him/her to leave the study?**

You have the right to refuse to allow your child to participate or to withdraw him or her at any time, without penalty. If your child does withdraw, it will not affect you or your child in any way. If you or your child chooses to withdraw, you may request that any data which has been collected be destroyed unless it is in a de-identifiable state. The investigators also have the right to stop your child's participation at any time. This could be because your child has had an unexpected reaction, has failed to follow instructions, or because the entire study has been stopped. Choosing not to participate or stopping the study will not affect your child's grades or relationship with his/her teacher.

**What about new information/changes in the study?**

If significant new information relating to the study becomes available which may relate to your willingness allow your child to continue to participate, this information will be provided to you.

**Voluntary Consent by Participant:**

By signing this consent form, you are agreeing that you have read it or it has been read to you, you fully understand the contents of this document and consent to your child taking part in this study. All of your questions concerning this study have been answered. By signing this form, you are agreeing that you are the legal parent or guardian of the child who wishes to participate in this study described to you by \_\_\_\_\_.

\_\_\_\_\_  
Participant's Parent/Legal Guardian's Signature

Date: \_\_\_\_\_

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6/25/15 to 2/26/16

Kara Battin Holden, Project Investigator  
Dr. Marcia Rock, Faculty Advisor

UNIVERSITY OF NORTH CAROLINA AT GREENSBORO

CONSENT TO ACT AS A HUMAN PARTICIPANT

**Project Title:** Impact of self-regulated learning coaching on teachers and student outcomes  
**Project Investigator:** Holden, UNCG  
**Faculty Advisors:** Dr. Marcia Rock, UNCG

Dear Teacher,

**What are some general things you should know about research studies?**

You are being asked to take part in a research study. Your participation in the study is voluntary. You may choose not to join, or you may withdraw your consent to be in the study, for any reason, without penalty.

Research studies are designed to obtain new knowledge. This new information may help people in the future. There may not be any direct benefit to you for being in the research study. There also may be risks to being in research studies. If you choose not to be in the study or leave the study before it is done, it will not affect your relationship with the researcher at the University of North Carolina at Greensboro. Details about this study are discussed in this consent form. It is important that you understand this information so that you can make an informed choice about being in this research study.

You will be given a copy of this consent form. If you have any questions about this study at any time, you should ask the researchers named in this consent form. Their contact information is below.

**What is the study about?**

This is a research project. Your participation is voluntary. The purpose of this study is to explore the impact of self-regulated learning coaching on teachers and student outcomes.

**Why are you asking me?**

You are being invited to take part in a research study that will include teachers because you are currently teaching in a school setting.

**What will you ask me to do if I agree to be in the study?**

You will be asked to teach, and have recorded, regularly scheduled reading lessons.

Each lesson will be recorded for 20 minutes.

You will be asked to participate in a professional development workshop on self-regulated learning strategies.

You will be asked to supply the researcher with your lesson plans before the lesson begins.

You will be asked to complete reflection questions after several lessons.

You will be asked to complete a short survey.

The study will take place for approximately 7-10 weeks.

**Is there any audio/video recording?**

You will be video recorded during a portion of this study. If you have any questions please discuss this with the researcher. Because you will be potentially identifiable by anyone who views/ hears the recording, your confidentiality for things you say on the recording cannot be guaranteed although the researcher will try to limit access to the recording as described below. Recordings will be kept in a

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Kara Battin Holden, Project Investigator  
Dr. Marcia Rock, Faculty Advisor

locked, safe place and only the research team will have access to the recording. All recordings will be encrypted and kept in a locked, safe place until verbal and non-verbal aspects of the participant interactions are coded. The link sheet will be stored separately from the data in a locked, safe filing cabinet in the researcher's office. After the collection and linking of the data to participants, the link sheet will be destroyed. All other paper and electronic data will be stored in a separate locked, safe place in the researcher's office for a minimum of three years following the study. Electronic data will be stored on a password protected, secure, and safe hard drive in the researcher's office for a minimum of three years following the study.

**What are the risks to me?**

There are no reasonably foreseeable risks or discomforts involved in taking part in this study, other than those normally assumed as part of your teaching duties. Potential risks may include breach of confidentiality, which is always a risk in data collection. Measures to keep data in a locked, safe place will be taken during all times in this study. This study is voluntary, and at any time you may opt to discontinue participation in this study. The Institutional Review Board at the University of North Carolina at Greensboro has determined that participation in this study poses minimal risk to participants.

If you have questions, want more information or have suggestions, please contact Kara Holden, LINK-2-LEAD doctoral scholar at the University of North Carolina, Greensboro (UNCG), Specialized Education Services (716) 983-0919 or by email at [k\\_battin@uncg.edu](mailto:k_battin@uncg.edu) or you may contact my faculty advisors, Dr. Marcia Rock at the University of North Carolina, Greensboro, Specialized Education Services at [mlrock@uncg.edu](mailto:mlrock@uncg.edu).

If you have any concerns about your rights, how you are being treated, concerns or complaints about this project or benefits or risks associated with being in this study please contact the Office of Research Integrity at UNCG toll-free at (855)-251-2351.

**Are there any benefits to society as a result of me taking part in this research?**

Through scholarly dissemination of scientific knowledge gained from this study, society members may gain a better understanding of the impact of coaching on teachers' use of self-regulation strategies and the impact on student achievement.

**Are there any benefits to me for taking part in this research study?**

Direct benefits included self-regulation strategy training and coaching, that when used during teaching and maintained over time have the potential to impact student achievement.

**Will I get paid for being in the study? Will it cost me anything?**

There are no costs to you or payments made for participating in this study.

**How will you keep my information confidential?**

All information obtained in this study is strictly confidential unless disclosure is required by law. No data that will identify individual subjects be published or in any way disclosed to third parties. Only project personnel will have access to information regarding participant's identity. Participants' identities will not be included on the survey or the data. Digital videotaping will occur during the study, provided the participant approves this. All recordings will be encrypted and kept in a locked, safe place until verbal and non-verbal aspects of the participant interactions are coded. After the collection and linking of the data to participants, the link sheet will be destroyed.

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Kara Battin Holden, Project Investigator  
Dr. Marcia Rock, Faculty Advisor

All other paper and electronic data will be stored in a separate locked, safe place in the researcher's office for a minimum of three years following the study. Electronic data will be stored on a password protected, secure, and safe hard drive in the researcher's office for a minimum of three years following the study.

**What if I want to leave the study?**

You have the right to refuse to participate or to withdraw at any time, without penalty. If you do withdraw, it will not affect you in any way. If you choose to withdraw, you may request that any of your data which has been collected be destroyed unless it is in a de-identifiable state. The investigators also have the right to stop your participation at any time. This could be because you have had an unexpected reaction, or have failed to follow instructions, or because the entire study has been stopped.

**What about new information/changes in the study?**

If significant new information relating to the study becomes available which may relate to your willingness to continue to participate, this information will be provided to you.

**Voluntary Consent by Participant:**

By signing this consent form you are agreeing that you read, or it has been read to you, and you fully understand the contents of this document and are openly willing consent to take part in this study. All of your questions concerning this study have been answered. By signing this form, you are agreeing that you are 18 years of age or older and are agreeing to participate, or have the individual specified above as a participant participate, in this study described to you by Kara Holden.

\_\_\_\_\_ Yes I will participate

Signature: \_\_\_\_\_ Date: \_\_\_\_\_

\_\_\_\_\_ No, I will not participate

Signature \_\_\_\_\_ Date: \_\_\_\_\_

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## **Letra de Reclutamiento Verbal**

### **Letra de Reclutamiento Verbal – Participante de Maestro**

Hola - Mi nombre es \_\_\_\_\_ y yo soy \_\_\_\_\_ (por ejemplo; estudiante graduado) de \_\_\_\_\_ (por ejemplo, institución de educación alta). La investigadora de este estudio (por ejemplo, Kara Holden) está interesada en como mejor ayudar a maestros usar y enseñar estrategias de autorregulación para mejorar resultados de los estudiantes. Como usted es maestro, usted se le está pidiendo participar en nuestro estudio de investigación. Si usted decide participar en este estudio, va ser observado y grabado durante su clase de lecturas regulares. También va participar en un entrenamiento de desarrollo profesional en estrategias de autorregulación. Después de este entrenamiento, yo voy a suministrar con entrenamientos durante su clase de lectura regulares. Todas la lecciones serán grabadas.

Yo voy a dar dos copias de la carta de consentimiento informado. Por favor lea la carta cuidadosamente. Si decide participar, porfavor marcar 'SI' y firme la carta. Si usted decide no participar, porfavor marcar "NO" y firme la carta. Después de leer la carta cuidadosamente y decidir, porfavor regresarme solamente una copia de la carta firmada. Cualquier pregunta sobre el estudio, porfavor ponerse en contacto conmigo. Mi numero de telefono y correo electrónico están en su copia del documento informado.

Recuerde, esto es completamente voluntario. Puede elegir tomar parte del estudio o no.

Muchas Gracias.

### **Letra de Reclutamiento Verbal – Participantes de Estudiantes (5-16 años de edad)**

Hola - Mi nombre es \_\_\_\_\_ y yo soy \_\_\_\_\_ (por ejemplo, estudiante graduado) de \_\_\_\_\_ (por ejemplo, institucion de educacion alta). La investigadora de este estudio (por ejemplo, Kara Holden) Está interesada en como mejor ayudar y enseñar estrategias de control-propio para mejorar resultados de los estudiantes. Como usted es un estudiante en la clase de \_\_\_\_\_ se le está pidiendo participar en este estudio. Si usted decide participar, yo grabare sus lecciones de lectura y pediré que hagan una breve encuesta. Tus padres han acordado para que usted tome parte del estudio.

Voy a dar dos copias de la carta de consentimiento informado. Por favor lea la forma cuidadosamente. Si usted decide participar, porfavor marcar 'SI' y firme la carta. Si decide no participar marcar 'NO' y firme la carta. Después de leer cuidadosamente la carta y tomo su decisión, porfavor regrese solo una copia de la carta firmada.

Recuerde, esto es completamente voluntario. Usted puede elegir en tomar parte del estudio o no.

Muchas Gracias.

Approved IRB

2/16/16



THE UNIVERSITY of NORTH CAROLINA  
**GREENSBORO**

**Forma de Permiso para Video-Grabar**

**Título del Proyecto:** El impacto que el entrenamiento de autorregulación resulta en maestros y estudiantes.

**Queridos Padres y Guardianes,**

**Quien soy yo?** Mi nombre es Kara Battin y soy una LINK-2-LEAD Doctoral Scholar en la Universidad de Carolina del Norte en Greensboro (Greensboro, NC). Estoy conduciendo un estudio para aprender como un entrenador puede ayudar a maestros y estudiantes usar autorregulación, también conocido como control-propio.

**Porque me han contactado?** Durante este estudio, la investigadora principal (Kara), video-grabará lecturas predeterminadas. Se le ha contactado porque su hijo/a está esta una clase con un niño/a que participa en este estudio y puede ser video-grabado. Ninguna información de su hijo/a será coleccionada durante este estudio. Las grabaciones serán guardadas en un lugar seguro y con candado y solamente el equipo de investigadores tendrán acceso a las grabaciones. Porfavor marcar abajo si usted desea o no dar permiso que su estudiante sea video-grabado. Si no desea que su hijo/a esté en el video, su hijo/a será movido onde no salga en las grabaciones. Elegir no permitir a su hijo/a que sea grabado, no le afectara de ninguna manera las calificaciones de su hijo/a, la relación con su maestro/a, la escuela, o agencia, ni la cantidad de instrucción de la lectura que recibirá.

**A quien contactó con preguntas?**

Kara Battin Holden (Investigadora Principal) LINK-2-  
LEAD Doctoral Scholar  
Departamento de Servicios en Educación Especial  
Escuela de Educación  
Universidad de Carolina del Norte en Greensboro  
Correo electronico: [k\\_battin@uncg.edu](mailto:k_battin@uncg.edu)  
Telefono: 716-983-0919

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Nombre de Niño/a: \_\_\_\_\_

Escuela: \_\_\_\_\_

\_\_\_\_\_ Yo doy permiso para que mi hijo/a que sea video-grabado durante sus lecciones de lectura.

\_\_\_\_\_ Yo no doy permiso para mi hijo/a que sea video-grabado durante sus lecciones de lectura

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UNIVERSIDAD DE CAROLINA DEL NORTE EN GREENSBORO

CONSENTIMIENTO DE MENOR PARA ACTUAR COMO PARTICIPANTE HUMANO

Título del Proyecto: Impacto en enseñanzas de autorregulación en maestros y estudiantes y sus resultados.

Investigador Principal y Consejera de la Facultad: Kara Battin Holden, UNCG; Marcia L. Rock, Consejera de la Facultad, UNCG

Nombre del participante: \_\_\_\_\_

**Cuáles son algunas cosas en general que debo saber sobre el estudio de investigación?**

Su hijo/a se le está pidiendo tomar parte del estudio. La participación de su hijo/a en el estudio es voluntaria. Usted puede elegir que su hijo/a no participe, o puede retirar su consentimiento por él o ella para estar en el estudio, por cualquier razón, sin castigo.

Estudios de investigación son diseñados para obtener nuevo conocimiento. La nueva información puede ayudar a las personas en el futuro. Puede haber un beneficio directo para su hijo/a en tomar parte del estudio de investigación. También puede haber riesgos por ser parte de estudios de investigaciones. Si usted decide que su hijo/a no tome parte en el estudio o decide sacar a su hijo/a del estudio antes de terminar, no va afectar su relación o la relación de su hijo/a con la investigadora de la Universidad de Carolina del Norte en Greensboro.

Detalles del estudio son descritos en esta carta de consentimiento. Es importante que usted entienda la información para que pueda tomar una decisión informativa sobre la participación de su hijo/a en este estudio.

Se le dará una copia de esta carta de consentimiento. Si tiene preguntas sobre el estudio en cualquier tiempo, debe preguntar a los investigadores nombrados en esta carta de consentimiento. Su información está abajo.

**De que se trata el estudio?**

Este es un proyecto de investigación. El participo de de su hijo/a es voluntaria. Quiero aprender como un entrenador puede ayudar a maestros y estudiantes usar estrategias de autorregulación. Autorregulación también puede ser descrito a como una persona responde a retos. La investigadora observara a los maestros y los estudiantes usar autorregulación. Si da permiso, su hijo/a participará en su clases de lectura normales y completaran una corta encuesta sobre autorregulación/control-propio.

**Porque usted le pregunto a mi hijo/a participar?**

Nos gustaría que su hijo/a participe porque es parte de la clase de \_\_\_\_\_.

**Que le pidiran a mi hijo/a que haga si estoy de acuerdo que tome parte del estudio?**

Su hijo/a participará en su clases de lectura como normalmente lo hace. Yo grabaré todas las clases de lectura. El estudio durará aproximadamente entre 7-10 semanas. Se le pedirá a su hijo/a en completar una corta encuesta en control-propio.

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Si usted decide que su hijo no tome parte en el estudio el o ella no será grabado, ni tampoco se le coleccionara información de su hijo/a.

**Habra algun audio/video grabación de mi hijo/a?**

Su hijo/a si será video grabado durante una porción de este estudio. Si tiene preguntas porfavor preguntele al investigador. Como la voz de su hijo/a puede ser potencialmente identificada por cualquier persona que escuche la grabación, confidencialidad por cosas dichas en las grabaciones no pueden ser garantizadas, aunque los investigadores tratan de limitar acceso a las grabaciones asi como se describe abajo. Las grabaciones serán guardados en un lugar seguro con candado y solamente el equipo de investigadores tendrán acceso a las grabaciones. En conformidad a las regulaciones federales, todas las grabaciones serán encriptadas y guardadas en un lugar seguro con candado hasta que las interacciones verbales y no verbales aspectos de las interacciones de los participantes sean codificadas. La pagina de los enlaces será guardada en un lugar separado de los datos en un lugar seguro con candado en la oficina de los investigadores. Después de la la colección y enlaces de los datos de los participantes, la pagina de los enlaces era destruida. El resto de los papeles y datos electrónicos serán guardados en un lugar seguro y con candado en la oficina de la investigadora por mínimo tres años después del estudio.

**Cuales son los peligros para mi hijo/a?**

Riesgos potenciales pueden incluir violación de la confidencialidad, la cual siempre es un riesgo en colección de datos. Medidas para tener los datos en un lugar seguro y con candado serán tomados durante todo tiempo de este estudio. Este estudio es voluntario, y en cualquier tiempo usted puede elegir a descontinuar participación en el estudio. La Institución de Revisos de la Universidad de Carolina del Norte en Greensboro a determinado que la participación en este estudio posa riesgos mínimos a los participantes.

Si usted tiene preguntas, gusta mas informacion o tiene alguna sugerencia porfavor contactese con Kara Holden, LINK-2-LEAD doctoral scholar en la Universidad de Carolina del Norte, Greensboro (UNCG), Servicio de Educación Especial (716)983-0919 o por correo electronico a [k\\_battin@uncg.edu](mailto:k_battin@uncg.edu) o puede contactar mi Consejera de Facultad, Dr. Marcia Rock en la Universidad de Carolina del Norte, Greensboro, Servicios de Educación Especial al [mlrock@uncg.edu](mailto:mlrock@uncg.edu).

Si usted tiene preocupaciones a sus derechos, como la están tratando, o quejas sobre este proyecto o beneficio y riesgos asociados por tomar parte de este estudio porfavor contactese a la Oficina de Integridad de Investigaciones en UNCG al teléfono gratuito al (855)-251-2351.

**Hay algún beneficio a la sociedad como resultado por mi hijo/a tomar parte de este estudio?**

Através de divulgación científica de conocimiento obtenido de este estudio, miembros de la sociedad pueden obtener un mejor entendimiento del impacto de entrenamiento sobre los maestros, usando estrategias de autorregulación y el impacto sobre el logro del estudiante .

**Hay algún beneficio para mi hijo/a como resultado en tomar parte de esta investigación?**

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No hay beneficios directos. Los beneficios incluyen que su hijo/a aprenda nuevas estrategias para aprender, participar y poder poner atención en la clase.

**Mi hijo/a será pagado por tomar parte del estudio? Me costará algo para que mi hijo/a sea parte del estudio?**

No hay costos para usted o su hijo/a, ni pagos por participar en este estudio.

**Cómo será la información de mi hijo/a mantenida confidencial?**

Toda información obtenida en este estudio es estrictamente confidencial al menos revelación sea necesaria por ley.

Ningún dato que identifique a sujetos individuales será publicado o de ninguna forma sea dada a conocer a terceros. Solo personales del proyecto tendrán acceso a la información de identidad de los participantes. Identidades de los participantes no serán incluidos en el cuestionario de los datos. Video grabación digital ocurrirá durante el estudio, proporcionado si el participante lo aprueba. En conformidad a las regulaciones federales, todas las grabaciones serán encriptadas y guardados en un lugar seguro y con candado hasta que las interacciones verbales y no verbales aspectos de las interacciones de los participantes sean codificadas. Después de la colección y enlaces de los datos a los participantes, la página de enlaces será destruida. Todo papel y dato electrónico será guardado en un lugar seguro y con candado en la oficina de la investigadora por lo mínimo tres años después del estudio.

Las grabaciones serán guardadas en un lugar seguro y con candado y solo el equipo de investigación tendrá acceso a las grabaciones. La lista maestra y toda información en papel será guardado en un gabinete seguro y con candado en la oficina de la investigadora por mínimo tres años después del estudio.

**Que pasa si mi hijo/a quiere dejar de participar en el estudio o yo quiero que ella/el deje el estudio?**

Usted tiene derecho de rechazar permitir que su hijo/a participe o de sacarlo en cualquier tiempo sin castigo. Si su hijo/a se sale, no le afectará a usted o su hijo/a de ninguna manera. Si usted a su hijo/a decide salirse, puede pedir que cualquier información que ya ha sido coleccionada sea destruida al menos que ya esté en un estado no identificable. Los investigadores también tienen derecho de para la participación de su hijo/a en cualquier tiempo. Esto puede suceder si su hijo/a ha tenido alguna reacción inesperada, ha fallado en seguir instrucciones, o porque el estudio ha sido parado. Elegir no participar o parar el estudio no le afectará los grados su su hijo/a o la relación con sus maestra.

**Qué pasa con nueva información/cambios en el estudio?**

En dado caso que información significativamente nueva relacionada al estudio se es disponible que pueda relacionarse a su complacencia para dejar a su hijo/a continuar en participar en el estudio, esta información será ofrecida a usted.

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**Consentimiento Voluntario de Participante:**

En firmar esta forma de consentimiento, usted está acordando que ha leído o se le ha leído a usted, usted entiende completamente el contenido de este documento y conciente que su hijo tome parte de este estudio. Toda pregunta de este estudio ha sido respondida. En firmar esta carta, usted reconoce que es el padre legal o guardián de este niño/a que desea participar en este estudio descrito por \_\_\_\_\_.

\_\_\_\_\_  
Firma Padre del Participante /Guardian Legal

Fecha: \_\_\_\_\_

UNCG IRB  
Approved Consent Form  
Valid from:  
2/16/16 to 1/18/17

APPENDIX D  
COVER LETTER



Letter for Child Consent

Month Day, 2016

Kara Battin Holden  
University of North Carolina at Greensboro  
Specialized Education Services  
LINK-2-LEAD doctoral scholar  
[k\\_battin@uncg.edu](mailto:k_battin@uncg.edu)  
(716) 983-0919

I would appreciate your assistance with this research project on self-control. This research will help me understand how a coach can help teachers and students use self-control in the classroom.

Your child will participate in reading lessons just as they normally do. I will video record all reading lessons. The study will last approximately 7-10 weeks. Your child will be asked to complete a short survey on self-control.

Please read the attached assent form and indicate if you grant your child permission or not at the end of the form. You have two consent forms. One form is for you to sign keep and one is to sign and return to school. Only the parental consent form should be signed at this time and I will go over the letter of assent with your child. Keep this letter for your records. If you have any questions regarding the research or your child's rights as a research participant, contact the Office of Research Integrity at the University of North Carolina Greensboro by phone at (336) 256-1482. If you have questions about the study please contact the project investigator, Kara Holden, Specialized Education Department at UNCG, by phone (716) 983-0919 or email at [k\\_battin@uncg.edu](mailto:k_battin@uncg.edu).

Sincerely yours,

Kara Battin Holden  
University of North Carolina at Greensboro  
LINK-2-LEAD doctoral scholar





### Carta de Consentimiento de Menor

February 11<sup>th</sup>, 2016

Kara Battin Holden  
Universidad de Carolina del Norte en Greensboro  
Servicios en Educación Especial  
LINK-2-LEAD doctoral scholar  
[k\\_battin@uncg.edu](mailto:k_battin@uncg.edu)  
(716) 983-0919

Yo apreciaria su asistencia en este proyecto de investigación en control-propio. Este estudio me ayudara entender como un entrenador puede ayudar a maestros y estudiantes usar control propio en el salon.

Su hijo/a participará en sus clases de lectura como normalmente lo hace. Yo grabaré las clases en áreas predeterminadas. El estudio durará áproximadamente entre 7-10 semanas. Se le pedirá a su hijo/a en completar una corta encuesta en control-propio.

Por favor lea la forma de consentimiento adjunto y indicar si usted concede a su hijo/a permiso o no al final de la carta. Usted tiene dos cartas de consentimiento. Una carta es para usted para firmar y quedar, y una es para firmar y devolver a la escuela. Solamente la carta de consentimiento del padre debe ser firmada por ahora y yo repasaré la carta de consentimiento con su hijo/a. Guarde esta carta para sus archivos. Si usted tiene alguna pregunta relacionada a la investigación o sobre los derechos de su hijo/a por ser participante , contacte la oficina de Integridad de Investigaciones de la Universidad de Carolina del Norte en Greensboro por teléfono al (336) 256-1482. Si usted tiene preguntas sobre el estudio por favor contáctese con la investigadora del proyecto, Kara Holden, Departamento de Educación Especial en UNCG, por teléfono al (716) 983-0919 o por correo electronico al [k\\_battin@uncg.edu](mailto:k_battin@uncg.edu).

Sinceramente,

Kara Battin Holden  
Universidad de Carolina del Norte en Greensboro  
LINK-2-LEAD doctoral scholar

Approved IRB  
2/16/16



## APPENDIX E

### VERBAL CONSENT SCRIPT

#### Verbal Consent Script

Study Title: Impact of self-regulated learning coaching on teachers and student outcomes

My name is Mrs. Holden.

#### What is this about?

I would like to talk to you about self-control. When you have self-control you manage your behavior and learning, especially when you want to do something else. I want to learn about how a coach can help teachers and students use self-control strategies.

#### Did my parents say it was ok?

Your parent(s) said it was ok for you to be in this study and have signed a form like this one.

#### Why me?

We would like you to take part because you have or are part of \_\_\_\_\_ class.

#### What if I want to stop?

You do not have to say "yes", if you do not want to participate. We will not punish you if you say "no". Even if you say "yes" now and change your mind after you start doing this study, you can stop and no one will be mad at you. Choosing not to participate or stopping the study will not affect your grades or your relationship with your teacher.

#### What will I have to do?

You will participate in reading lessons just as you normally do. I will record the reading lesson. You will be asked to complete a short survey about self-control.

#### Will anything bad happen to me?

Nothing bad will happen to you.

#### Will anything good happen to me?

Benefits include learning new strategies to help you learn, participate, and pay attention in class.

#### Do I get anything for being in this study?

No.

#### What if I have questions?

You are free to ask questions at any time.

If you understand this study and want to be in it, please give me a "thumbs up".

If you understand this study and do not want to be in it, please give me a "thumbs down".

UNCG IRB  
Approved Consent Form  
Valid from:  
6/25/15 to 2/26/16

## APPENDIX F

### INSTITUTION 2 IRB APPROVAL



# STILLMAN

*Office of the President*

To: Ms. Kara Battin Holden - The University of North Carolina at Greensboro  
Dr. Marcia L. Rock - The University of North Carolina at Greensboro  
Dr. Donna Ploessl - Stillman College  
From: Dr. Peter Edmund Millet  
Re: Impact of self-regulated learning coaching on teacher and student outcomes  
Date: Thursday, February 25, 2016

The document listed below has been carefully reviewed and found to be in compliance with OPRR document title 45, Code of Federal Regulations part 46, the protection of human subjects, as amended by Federal policy, effective August 19, 1991. This project is **approved** as it presents minimal or no research risks to the pool of impending human subjects. Please make note, that any deviations in the administration of the protocol, accidental or otherwise should be reported to Stillman College as soon as possible.

#### **Impact of self-regulated learning coaching on teacher and student outcomes**

This approval is valid for one year from the date indicated above. Continuation of research beyond that date requires re-approval by Stillman College.

Please contact me at 205.366.8808 or [pmillet@stillman.edu](mailto:pmillet@stillman.edu) for additional information.

# APPENDIX G

## ONLINE SRL TRAINING MODULE EXCERPTS

onlineSRLtrainingmodule > Home

Members Projects Events Assessment Settings

### Importance of SRL

Importance of Students' with Disabilities Self-Regulating Learning

Student use of SRL

Higher academic achievement (Zimmerman, 2002)

Add Discussion

Home pages changes

All Pages

- Importance of SRL
- Characteristics of self-regulated learners
- SRL Strategies
- Examples of SRL Strategies in Use
- Explicit and Implicit SRL Instruction
- eCoaching

edit navigation

onlineSRLtrainingmodule > Home

Members Projects Events Assessment Settings

### Characteristics of self-regulated learners

Self-regulation is not a developmental stage, a mental ability, or an academic performance skill (e.g., Schunk & Zimmerman, 2008) but rather involves a students' initiation of process, strategies, or responses.

Self-regulated learners are confident, diligent, and resourceful (Bandura, 1989)

Self-regulated learners are aware when they know a fact and when they do not, proactively seek information and the necessary steps to master it, and accept greater responsibility for their achievements.

Self-regulated learners engage in problem solving, attack challenging problems, and persist in difficult situations, providing them skills and strategies needed to be motivated to achieve success and to avoid failure (Paris & Oka, 1986).

Self-regulated learners use strategies to support their self-regulation during learning. For example, your students can self-monitor their actions to observe and record behavior in effort to complete a task, such as using prompt cards to check off strategies used during reading.

Add Discussion

Home pages changes

All Pages

- Importance of SRL
- Characteristics of self-regulated learners
- SRL Strategies
- Examples of SRL Strategies in Use
- Explicit and Implicit SRL Instruction
- eCoaching

edit navigation

onlineSRLtrainingmodule > Home

Members Projects Events Assessment Settings

### Examples of SRL Strategies in Use

<https://www.youtube.com/watch?v=HLLGSPdYmQ>

Self-Monitoring

Home pages changes

All Pages

- Importance of SRL
- Characteristics of self-regulated learners
- SRL Strategies
- Examples of SRL Strategies in Use
- Explicit and Implicit SRL Instruction
- eCoaching



edit navigation

## APPENDIX H

### EXAMPLE STUDENT SELF-MONITORING CUE CARD

Student ID # \_\_\_\_\_

Date \_\_\_\_\_

<b>Have I used Self-Instruction?</b>  <b>For example: What is my goal? What is my next step? Have I read the questions? I can do this if I use my strategy and take my time!</b>	
<b>Yes</b> 	<b>No</b> 

(Adapted from Rafferty, 2012)

# APPENDIX I

## SRL COACHING CODEBOOK

Student Strategy Use		
Behavior	Description	
Self-Instruction	Full Definition	Forms of self-instruction include: problem definition (sizing up the nature and demands of the task), focusing attention and planning (attending to the task at hand and generating a plan), strategy (engaging and implementing strategies), self-evaluating and error (evaluating performance, catching and correcting errors), coping and self-control (subsuming difficulties or failures and dealing with forms of arousal), and self-reinforcement (providing reward) (Harris et al., 2003).
	Brief Definition	Self-directed orders or descriptions about the task being performed (Panadero, 2014).
	When to Use	For example when a student asks himself during a reading exercise about the steps to comprehend what is being read. What is it I have to do here? What am I up to? What is my first step? I have to concentrate, be careful . . . think of the steps. To do this right, I have to make a plan. First I need to . . . , then . . .I'm getting better at this. Wait 'til my teacher reads this! Hooray--I'm done!
	When Not to Use	When students are answering a questions, involved in conversation, or having dialogue with peers and/or adults.
Self-Recording	Full Definition	Recording of actions to monitor and enhance reflection once task is completed. Helps with awareness of things that could have gone undetected before (Panadero, 2014).
	Brief Definition	Recording of actions or behaviors.
	When to Use	Recording use of self-instruction, goal setting, and/or self-reinforcement.
	When Not to Use	When students are engaged in writing activity that does not involve the designated form of self-recording.
Goal Setting	Full Definition	Self-regulated learners can set two types of goals: performance or behavioral.
	Brief Definition	Academic or behavioral goals set within the context of a learning task.
	When to Use	When a student sets a behavioral goal he may aim to earn a higher mathematics grade or read a set number of words per minute. When a student sets a behavioral goal he may want to improve his

		attention during teacher instruction or decrease the amount of times he blurts out in class and disturbs instruction. When a student is prompted to set a behavioral or academic goal (Harris, Graham, & Rock, 2011).
	When Not to Use	When a student does not set a specific behavioral or academic goal.
Self-Reinforcement	Full Definition	A selected and preferred activity, tangible, or social event that motivates a student to accomplish a goal (Harris, Graham, & Rock, 2011).
	Brief Definition	When a student selects a reinforcer and gives it to him or herself after accomplishing a goal.
	When to Use	After a goal is accomplished.
	When Not to Use	Before a goal is accomplished.

#### Student Engagement

Behavior		Description
Behaviorally Engaged	Full Definition	Students are involved in learning such as staying on task and participating (Fredricks, Blumenfeld, & Paris, 2004). Students are putting forth an effort, demonstrating positive conduct through following rules and adhering to class norms (isbe.net, Illinois state board of education).
	Brief Definition	Same as Full Definition
	When to Use	When students follow teacher directions and/or focused on teacher, work, or speaker as defined by listening (can make assumption), watching, sitting/standing appropriately, and following directions.
	When Not to Use	When students are disruptive, performing an action or task other than what was instructed by the teacher, or focused on something other than class work or speaker.

#### Teacher SRL Instruction

Behavior		Description
Explicit & Implicit SRL Instruction	Explicit SRL Instruction	Teacher provides direct instruction explaining different strategies to students, as well as how those strategies are used, what skills are involved in using those strategies, when to use the strategy, and how to pursue and monitor goal achievement ( Michalsky & Schechter, 2013; Zimmerman, 2008). Teacher explains the use of the SRL strategy, using who, what, where, when, and why language (Kistner et al., 2010).

Implicit SRL Instruction	When the teacher provides direct SRL strategy instruction by modeling the use of the strategy. Teacher acts as role model (Kistner et al., 2010). The teacher may prompt students to use SRL strategies without directly referring to it (Michalsky & Schechter, 2013).
When to Use	When the teacher directly teaches SRL strategies by explaining SRL strategy or explaining use of strategy. When the teacher states clearly and in detail, how and when to use SRL strategies, leaving no room for confusion or doubt. Or when the teacher models self-instruction or self-recording or acts as a role model (Michalsky & Schechter, 2013).
When Not to Use	When teacher uses explicit or implicit instruction in regards to a content area (e.g., reading, writing, math).

#### Coach Feedback

Behavior		Description
Encouraging	Full Definition	Virtual coach provides specific praise which is contingent on demonstration of a teaching behavior (Scheeler, et al., 2004).
	Brief Definition	Virtual coach provides praise.
	When to Use	See Brief Definition
	When Not to Use	Virtual coach questions or instructs teacher.
Instructing	Full Definition	Virtual coach offers "objective information related to predetermined specific teaching behaviors" (Scheeler, et al., 2004, p. 399).
	Brief Definition	Virtual coach provides verbal feedback to instruct teacher.
	When to Use	Virtual coach provides feedback that instructs the teacher to complete a task, give directions, respond to a student(s), or asks a question. Virtual coach pre-corrects teacher action or language.
	When Not to Use	Virtual coach encourages or questions teacher.
Questioning	Full Definition	Virtual coach poses sentence "in interrogative form to get information or to clarify specific teaching behaviors" (Random House Unabridged Dictionary, as cited in Rock et al., p. 71, 2009).
	Brief Definition	Virtual coach asks the teacher a question.
	When to Use	See Brief Definition
	When Not to Use	Virtual coach instruct or encourages the teacher.

Term	Code	Definition
Self-judgment	SJ	Self-evaluation & causal attribution (Zimmerman, 2002).
Self-reaction	SR	Self-satisfaction or affect and/or adaptive or defensive (Zimmerman, 2002).
Self-Judgment Sub codes		
Self-evaluation	SE	<p>When the teacher responded with comments that were comparisons of self-observed performance (e.g., systematically monitoring own performance, recording data, comparing prior performance, previous established goals, or absolute standard performance) (Capa-Aydin, Sungur, &amp; Uzuntiryaki, 2009; Zimmerman, 2002).</p> <p>Example: "I prompted students to use more SRL strategies in this lesson than in previous lessons before the online SRL training module and/or eCoaching started."</p>
Causal attribution	CA	<p>Beliefs about the cause of the teacher's errors or successes in teaching SRL (e.g., commenting on score or fidelity percentage) (Zimmerman, 2002). The word "cause" may be used in a sentence.</p> <p>Example: "The students' seating arrangement caused me confusion on how to promote SRL" or "More understanding of this topic will improve my ability to teach."</p>
Self-Reaction Sub codes		
Self-satisfaction	SS	<p>Affective responses following a teaching performance (Capa-Aydin, Sungur, &amp; Uzuntiryaki, 2009). When teachers respond to how they engaged in personal process (e.g., goal-setting; rehearsing or practicing skill components; asking for help; remembering skill) and/or self-administering praise or criticism (e.g., comments include feelings of positive movement toward goal; Zimmerman &amp; Labuhn, 2012).</p> <p>Example: "I did well with the prompts I gave to self-monitor" or "I need to improve my prompts to use self-instruction."</p>
Adaptive	AE	<p>Help-seeking; getting help from others to resolve problems encountered in teaching process (Capa-Aydin, Sungur, &amp; Uzuntiryaki, 2009). Readiness to make personal adjustments (e.g., willing to adapt strategies, procedures, or materials to demands of given task) (Zimmerman &amp; Labuhn, 2012; Zimmerman, 2002).</p> <p>Example: "I need to set up the materials before the lesson begins" or "I need to consult with my cooperating teacher and/or eCoach for how to improve my SRL instruction."</p>



## APPENDIX J

### DATA COLLECTION CHART: RESEARCH QUESTION 2

K-12 Student Measure of SRL Self-Monitoring and Self-Instruction

Data Collection Chart: Research Question 2 (RQ2)

Student ID # \_\_\_\_\_ Date:        Phase:       

RQ 2: How does pre-service special education teachers' receiving SRL training + eCoaching on instruction of SRL strategies impact their students' use of those strategies?

Session #	Self-Record (Y/N)	Set Goal (Y/N)	Self-Monitoring (Y/N)	Self-Instruction	Frequency of Self-Instruction (Tally)	Percentage of Self-Instruction	Rate of Self-Instruction (Total #/Time)
				Yes			
				No			
				Yes			
				No			
				Yes			
				No			
				Yes			
				No			
				Yes			
				No			
				Yes			
				No			
				Yes			
				No			
				Yes			
				No			
				Yes			
				No			
				Yes			
				No			

## APPENDIX K

### DATA COLLECTION CHART: RESEARCH QUESTIONS 1, 3, & 4

Data Collection Chart: Research Questions 1 & 3(RQ1, RQ3)

Teacher ID # \_\_\_\_\_

Date/Session: \_\_\_\_\_

RQ 1: How does pre-service special education teachers' SRL strategy use during instruction impact their students' use of those strategies? RQ 3: How does pre-service special education teachers' SRL strategy use during instruction impact their students' engagement in learning?

	2 minute Interval Recording										
TEACHER RESPONSE	2 min	4 min	6 min	8 min	10 min	12 min	14 min	16 min	18 min	20 min	Totals
Explicit											
Implicit											
<b>eCOACH FEEDBACK</b>											
Encouraging											
Questioning											
Instructing											
<b>STUDENT ENGAGEMENT</b>											
Engagement											
Notes:											

Behavior Response Key	
In use	+
Not in use	-

Student Engagement Response Key	
Engaged	+
Disengaged	-

(Adapted from Rock et al., 2009)

RQ 4: How does pre-service special education teachers' participation in online SRL training + *eCoaching* impact their self-reflection?

**Reflection Questions for Debrief (5 minutes)**

Describe one thing that went well with the task/goal/session:

Describe one thing that could have been improved upon (if anything):

What actions would you take to make the improvement(s)?

## APPENDIX L

### SOCIAL VALIDITY QUESTIONNAIRES

**Teacher Participant Questions (adapted from The Iris Center)**  
**Participants ID #** \_\_\_\_\_










**Teacher**

Rank all statements. Rank items using the following guidelines: *1=Strongly Disagree* and *5=Strongly Agree*.

1. The use of self-regulation learning strategies (i.e., self-instruction and self-recording) focuses on an important student behavior (i.e., self-regulation).	1	2	3	4	5
2. Self-regulated learning is of sufficient concern to warrant teaching self-regulated learning strategies.	1	2	3	4	5
3. I believe that using self-regulation learning strategies will produce effective results.	1	2	3	4	5
4. I understand the how to teach self-regulation learning strategies.	1	2	3	4	5
5. Self-regulated learning strategies were easily incorporated into my classroom system.	1	2	3	4	5
6. I believe that I can accurately implement self-regulated learning strategies in my classroom.	1	2	3	4	5
7. I have the necessary materials (i.e., training and support) to implement self-regulated learning strategies accurately.	1	2	3	4	5
8. The time required teaching self-regulated learning strategies was reasonable.	1	2	3	4	5
9. The online SRL training was accessible.	1	2	3	4	5
10. The online SRL training was practical.	1	2	3	4	5
11. The online SRL training was useful.	1	2	3	4	5
12. The online SRL training strengthened my skills as a teacher	1	2	3	4	5
13. The eCoaching (real time, in-ear coaching) enhanced my skills as a teacher.	1	2	3	4	5
14. I saw an increase in my students use of SRL strategies because my SRL instruction.	1	2	3	4	5

## Student Participant Questions

Answer all questions. Color in your answer.

	Yes	Maybe	No
1. Did the self-check strategies help you pay attention?			
2. Did the self-check strategies help you learn?			
3. Did you like using the self-check strategies?			

# APPENDIX M

## *e*COACHING FIDELITY MEASURE CHECKLIST

Teacher ID # \_\_\_\_\_

### Coaching SRL Pilot 2015 Coaching Fidelity Checklist

Frequency Count (Tally)				
	<i>e</i> Coach Feedback			
Phase/Session	Encouraging	Instructing	Questioning	Totals

## APPENDIX N

### INSTITUTE 1 IRB APPROVAL



THE UNIVERSITY of NORTH CAROLINA  
**GREENSBORO**

**OFFICE OF RESEARCH INTEGRITY**  
2718 Beverly Cooper Moore and Irene Mitchell Moore  
Humanities and Research Administration Bldg.  
PO Box 26170  
Greensboro, NC 27402-6170  
336.256.0253  
Web site: [www.uncg.edu/orc](http://www.uncg.edu/orc)  
Federalwide Assurance (FWA) #216

To: Kara Holden  
Specialized Education Services  
[kebholden@gmail.com](mailto:kebholden@gmail.com)

From: UNCG IRB

Authorized signature on behalf of IRB

Approval Date: 2/27/2015  
Expiration Date of Approval: 2/26/2016

RE: Notice of IRB Approval by Expedited Review (under 45 CFR 46.110)  
Submission Type: Initial  
Expedited Category: 7.Surveys/interviews/focus groups,6.Voice/image research recordings  
Study #: 15-0086  
Study Title: Impact of self-regulated learning coaching on teachers and student outcomes

This submission has been approved by the IRB for the period indicated. It has been determined that the risk involved in this research is no more than minimal.

#### Study Description:

The purpose of this study is to study the impact of self-regulation coaching on teacher and student outcomes. The hypothesis is that when provided with coaching on SRL, teachers will exhibit higher rates of using SRL during teaching and their students will demonstrate higher rates of SRL during learning.

#### Regulatory and other findings:

- This research, which involves children, meets criteria at 45 CFR 46.404 (research involving no greater than minimal risk). Permission of one parent or guardian is sufficient.

#### Investigator's Responsibilities

Federal regulations require that all research be reviewed at least annually. It is the Principal Investigator's responsibility to submit for renewal and obtain approval before the expiration date. You may not continue any research activity beyond the expiration date without IRB approval. Failure to receive approval for continuation before the expiration date will result in automatic termination of the approval for this study on the expiration date.

Signed letters, along with stamped copies of consent forms and other recruitment materials will be scanned to you in a separate email. **Stamped consent forms must be used unless the IRB has given you approval to waive this requirement.** Please notify the ORI office immediately if you have an issue with the stamped consents forms.

You are required to obtain IRB approval for any changes to any aspect of this study before they can be implemented (use the modification application available at <http://integrity.uncg.edu/institutional-review-board/>). Should any adverse event or unanticipated problem involving risks to subjects or others occur it must be reported immediately to the IRB using the "Unanticipated Problem-Adverse Event Form" at the same website. Please be aware that valid human subjects training and signed statements of confidentiality for all members of research team need to be kept on file with the lead investigator. Please note that you will also need to remain in compliance with the university "Access To and Retention of Research Data" Policy which can be found [http://policy.uncg.edu/research\\_data/](http://policy.uncg.edu/research_data/).

CC:  
Marcia Rock, Specialized Education Services